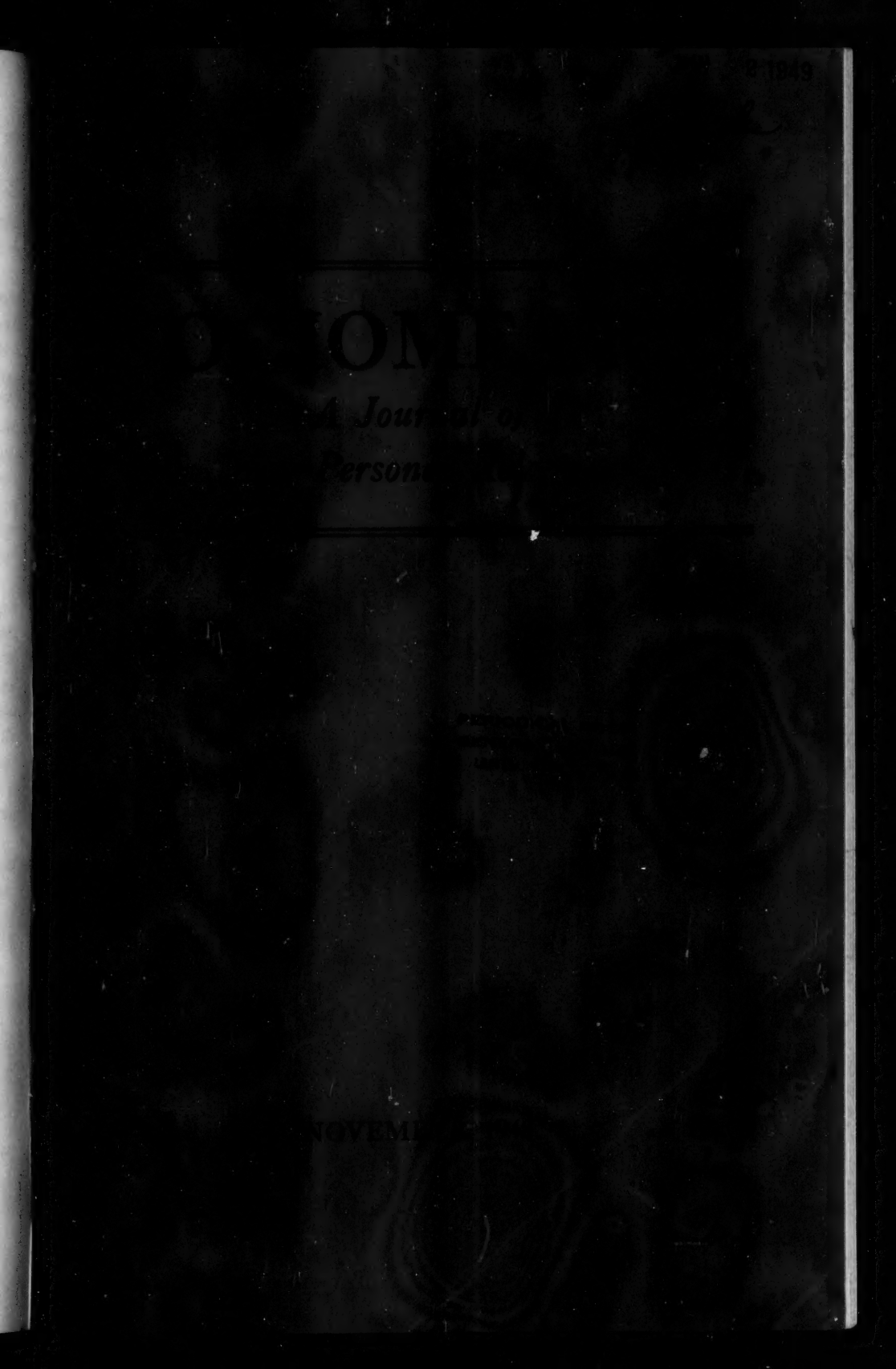

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CONTENTS

SOME SAMPLING PROBLEMS IN SOCIOMETRIC SURVEYS

FRANK A. STEWART
Time Magazine, New York

Open community sociometric surveying obviously presents problems not encountered in closed and controlled communities such as classroom, institutional or military unit populations. Interviewing and questioning techniques must be adapted to the fact that prospective respondents are under no obligation to cooperate; and the survey must usually be of a sample rather than of the whole population.

The experience of the census, market research, and public opinion samplers helps, to be sure. But interestingly it does not give an answer to so basic a question as how large must the sample be. The problem is not different than that encompassed by the standard mathematics of sampling; the difficulty merely is that the sociometric survey in effect calls for much more refined and minute breakdowns than are ordinarily needed. This is because *the sociometric survey is concerned with the individual* or small groups of individuals, and *only rather incidentally with the total population.*

This concept is based on the hardly original thinking that just about every individual influences and/or is influenced by his immediate environment. He contributes to the shaping of that environment, largely through his contacts with other individuals; and it, principally through individuals with whom he comes in contact, does things to him in return. Society in this sense, then, is not a generalization, but an aggregation of individuals interlocked by personal friendship and acquaintance ties into many groups, and they in turn into a functioning whole.

How Big a Sample?

These last sentences are here not for any fancied philosophical worth but because they bear on a very practical question. They in effect say that one cannot follow Gallup, Roper, Crossley, et al., in their use of a sample of a few thousand people to represent the nation. Cannot, that is, if we want insight into how a society is really composed in terms of intermediate and and smaller centers of interpersonal influence, in addition to those standouts that everyone knows or can learn of readily.

The problem is just this. An individual's range of interpersonal effect or influence on others is, virtually by definition, limited to those with whom he comes in contact; its effective range is still further limited to those with whom that individual has ready access through friendship. Therefore, any

individual's range of interpersonal influence—viewed as either intake or output—operates directly among only a relatively few other individuals. For some this may be as small a number as, say, five or fewer; others may function in little sub-societies of 10 or 20; a few may have much larger interpersonal worlds.

If there were established norms for sociality, as are available for criteria like sex, age, education, income, and many others, then we presumably could develop a formula for sociometric sampling. This formula would, by taking into account mean acquaintance or friendship ranges, serve to indicate the sample required to give every member of the population an even chance to be selected once, twice or any specified number of times; the practical effect would be that of permitting the selection of the sample design that would enable measurement of the interpersonal influence structure of the community in any desired intensity.

These sociality norms apparently would vary widely according to city size and to socio-economic strata. We believe they can be established through additional survey experience, but pending that time we may have to operate more empirically than theoretically.

Another approach, also empiric, would be that of attempting to determine the sample design from the questionnaire content. For example say the schedule includes five questions calling for the naming of one person each. Then, if we set as the criterion of sample adequacy the requirement that every person in the population have an even chance of being mentioned once, we will need a 20% sample of the persons. (In practice, of course, some persons will be mentioned several or even many times, while others will will not be mentioned at all.)

It appears fair to say that we have no way of knowing now exactly what percentage sample should be used in a given community. But for whatever help in sample planning it may be, here are the designs used in the open community surveys with which the writer is familiar.

DATE	SURVEY	SAMPLE DESIGN
1936	Vermont village study, including one sociometric question.[1]	100% sample of families.
1943	Dover, New Jersey, experimental study, conducted in part by intensive, open-ended interviews and in part by a set schedule.[2]	Dispersed; small percentage of population.

[1] George A. Lundberg, and Mary Steele, "Social Attraction-Patterns in a Village," SOCIOMETRY, January-April, 1938, I, 3 & 4, 375-419.

[2] Paul Lazarsfeld, "The Influence Structure of Dover, N. J.", unpublished.

DATE	SURVEY	SAMPLE DESIGN
1944	Southern small city study, including 14 sociometric questions.[3]	Dispersed; a 25% sample of permament resident, white families.
1947	Astoria-Sunnyside (N.Y.C.) study, including six sociometric questions.[4]	Area; 100% sample of families in eight blocks; 20% sample in five blocks.
1947	Northern small city study, including eight sociometric questions.[5]	Area; 20% sample of families.
1947	Southern village study, including five sociometric questions.[5]	100% sample of families, both white and negro.
1947	Northern village study, including one sociometric question.[5]	100% sample of families.

The 100% family samples in two of the 1947 studies above were dictated in part by considerations other than hypotheses in regard to sampling. And all the evidence from the four 1947 studies is not yet analyzed.

But as an interim impression, it is believed that a decidedly large percentage sample is required in a New York City area, and probably also in any city on the order of, say, over 500,000 population. By large we might suggest a 40-50% sample of families in the largest cities—because the mean friendship range in the metropolis appears to be comparatively small in both geographic spread and numeric volume. (Hence, the big city sociometric survey will be confined by the limitation on interviewing resources to small neighborhood areas.)

Smaller percentage samples would be feasible at the other end of the urbanization scale, since people in small towns and cities apparently have a much wider acquaintance range. Even in places where it would seem that everyone would know nearly everyone else, however, it is questionable whether the sample should drop below, say, 15% of the families. A still smaller sample might serve to identify adequately the main patterns of interpersonal influence in the place; but the risk of missing important intermediate and lower centers of influence naturally will increase rapidly as the

[3] Frank A. Stewart, "A Sociometric Study of Influence in Southtown," SOCIOMETRY, February, 1947, X, 1, 11-31.

[4] Frank A. Stewart, "A Study of the Leadership Structure in Selected Astoria and Sunnyside Blocks," unpublished.

[5] These studies, on which the writer was consultant, are not yet available for publication.

sample percentage is decreased. So the rough indications available suggest a 15-20% sample of families as a minimum, with higher percentage desirable if interviewing resources permit.

Quota Controls or Area Design?

Discussion of this point of contention in market and public opinion research could be sidestepped because of a practical consideration. That is, when dealing with samples ranging from 15% up to 50% of the families and if more than one interviewer is on the job, at least broad area assignments are imperative if only to keep interviewers from calling on each other's respondents.

And "contention" is not really the proper word above. You have only to read the recent literature—particularly *The Public Opinion Quarterly, International Journal of Opinion and Attitude Research,* and *Journal of the American Statistical Association*—to see how completely the proponents of the area or probability sample have won the battle over theory. The chief argument of those continuing to use the quota system is that field work is much less costly.

Until the 1948 elections, the political pollsters had been able to show that their quota controls enabled them to produce about as accurate an aggregate result as did the admittedly sounder probability sample. It is fair to say that large compensating errors contributed to that result. The errors did not compensate in 1948, and so we had practical demonstration of the urgent need for use of the best possible techniques, including the more precise sampling methods available.

But there is a sociometric consideration too that dictates the area approach. The delineation of the complete influence structure of a community must be precise in terms of individuals. Anything less than 100% coverage of the individuals is a compromise. It is not an unimportant one, as in market or public opinion reasearch, for it is an individual's relation to another that links the influence structure together. But as the compromise must usually be made, pains toward making the survey minutely representative must be taken. This requires specific address assignments, or in other words the area or probability sample; otherwise the survey analyst has no basis for determining the socio-economic character, the geographic location or even the existence of gaps in the interpersonal patterns he is tracing.

Are Call-Backs Worth the Effort?

Once committed to the areal approach, call-backs (to take interviews with those not available at the interviewer's first call) are not in question. They must be made in order to live up to the assumptions of the probability sample. But granting the theoretical necessity for call-backs, we can still ask whether they make much practical difference.

There is a minimum of literature on this point. Hilgard and Payne were evidently pretty convincing (when they concluded that "people easily found at home on the first call differ significantly from those found at home only after repeated calls. The latter occur in large enough proportions to make it important for repeated calls to be made in order to represent them in sample surveys.")[6] They found that, as compared with households interviewed on the first call, those reached on later calls contained smaller families with, of course, fewer children; there were more employed housewives among those reached on later calls. These facts were found to have an important effect upon survey projections on ownership of certain household appliances. Hilgard and Payne also suggested that opinion data would be affected by the "not at home" bias; for one thing young and old often differ in opinion matters, and older individuals are more easily reached on the first visit than are young people.

It also appears that differences in interests may be found through call-backs. While Politz states that "the reading interests of women reached by call-backs showed small variation from those of women at home at the time of the first call," the differences are rather consistent.[7] Thus, he found first call women to have somewhat more interest in home crafts (food, needlework, etc.) than later call women; the latter on the other hand have somewhat greater interest in matters of wider concern (current events, etc.) than first call women.

The Astoria-Sunnyside survey, mentioned earlier, may also be referred to for evidence on the practical effect of call-backs. Interviewers on this project were given specific address assignments and were instructed to make their calls in the evenings and on weekends to minimize the "not at home" bias; they were required to make one call-back (some made two or

[6] Ernest H. Hilgard, and Stanley L. Payne, "Those Not at Home: Riddle for Pollsters," *The Public Opinion Quarterly*, Summer 1944, 8, 2, 254-261.

See also C. West Churchman, Russell L. Ackoff, Murray Wax, (Ed.), *Measurement of Consumer Interest*, (Philadelphia, 1947), pp. 22-25, 28-29, 33, 120.

[7] Alfred Politz, "The Evaluation Study," a section of "A Qualitative Study of Magazine Audiences," The McCall Corporation, September 1946.

three) at a different hour on a different day to catch those not reached on the first call.

Two sub-samples from this survey were analyzed: all interviews taken in blocks with $30-39 average rent, and all interviews taken in blocks with $50-74 average rent, or a total of 724 cases. Of these, 560 interviews were taken on the first call and 164 on second or third calls. The differences in regard to sociality of persons interviewed on first and those reached on later calls may be seen in the following table:

	$30-39 Blocks		*$50-74 Blocks*	
	1st Call	*2nd Call*	*1st Call*	*2nd Call*
Interviews taken	291	90	269	74
Number persons mentioned per respondent:				
None	20%	18%	39%	31%
One or two	31	29	29	24
Three or four	28	15	13	24
Five or more	21	38	19	21

The differences are consistent in direction, with both sets of later call cases mentioning more persons than those reached on the first call. And both sets of differences have high probability of being actual ones. (Chi Square computations show P values of .01 and .07, respectively, for the two pairs of distributions.)

NOTE: While these data might also be thought to suggest that persons living in higher rent blocks, and hence presumably of higher socio-economic level, have a smaller acquaintance range than those in lower rent blocks, this apparent showing is due rather to experimentally introduced changes in the interview schedule used among the $50-74 people. Actually, as found in both this survey and the Northern small city study, the mean acquaintance range increases markedly with higher economic status.

These data indicate that had the survey not provided for call-backs, there would have been overrepresentation of persons with a low degree of sociality. It may be inferred, then, that first call people are a little less active in the community's social and civic life. So in addition to differences on family size, working status, and reading interests, later call people differ from those reached on first calls on a point—sociality—that is directly pertinent to the sociometric survey.

SUMMARY

Some of the problems associated with open community sociometric sampling have been discussed, with these findings:

Indications are that, for any detailed tracing of interpersonal patterns, a 15-20% sample of the families is the practical minimum in smaller cities; in larger cities, where the geographic and numeric range of friendship is more limited, larger samples up to 50% of the families are needed.

Specific address assignments are required as both a practical and a theoretical matter.

Call-backs, at least among a sample of those not reached on the first call, are necessary in order to fulfill sampling assumptions and because persons reached on later calls differ from those interviewed on first calls.

AN INTERVIEWER'S REPORT ON ADULT SOCIOMETRIC STUDY

ISABEL A. STEWART
New York

Let's say it at the start—the interviewing process cannot be taken for granted; a survey is no better than the quality of the field work.

That quality can be affected by a wide range of problems, as will be suggested in this report. The intent here is to indicate the nature of both the successes and the failures in a single study for such light as they may shed on the interviewing process generally.

The study made in Southtown has been described earlier as experimental.[1] The interview schedule had not been fully pre-tested, and it was realized that building an entire interview on questions calling for the naming of names might be demanding too much of the personal interview technique. We had no idea whether the townspeople would cooperate and, as a beginning, we had only slight knowledge of the social structure of the town.

The survey plan called for interviewing every home on certain streets. The interviewer worked in both day and evening hours, week days and weekends, in an attempt to equate the number of men and women interviewed. Also, appointments were made to interview the businessmen of the town at their offices. And, as the survey progressed, and it became evident that the number of women would far outnumber the men, another plan was followed. It had been noted that the fire station in Southtown was a popular gathering place for men. The interviewer on one day managed to obtain a private corner in the fire station and interviewed individually the men who were gathered there. Otherwise, all interviews were conducted in homes.

The interviewer was well instructed before she started making calls; several trial interviews were conducted with the investigator who presented as many of the problems as could be foreseen. The first true interviews were made on a Sunday and the interviewer returned after each two or three and discussed them with the investigator. In these discussions, the interviewer found that many of the comments made by the interviewee which she had not recorded, but which she reported verbally, had real value. After the first two interviews, therefore, the interviewer recorded all comments and observations, and also wrote up special reports on a considerable number of the interviewees. These reports later proved most helpful in analysis of the results; in a sense, they permitted the study to take on a depth aspect.

[1] Frank A. Stewart, "A Sociometric Study of Influence in Southtown," *Sociometry*, February 1947, X, 1, 11-31.

From the beginning, the interviewer found the great majority of Southtown people cooperative. Salesmen and interviewers know that Monday morning is almost always a poor time to call on businessmen. However, the interviewer called at the office of the president of Southtown's leading industry on a Monday morning, seeking an appointment for later in the week; he insisted that she come right in, received her most courteously, and gave her one of the most complete of all interviews. At the conclusion of the interview, he listed for her the names of certain men that she "must" see. Most of Southtown's businessmen were equally cooperative.

There were, of course, some individuals who were pleasant and were willing to be interviewed, but who simply didn't know many other people in the town. But even from these there often came comments about the town and their feelings toward it that were helpful in piecing together the general social structure. On the other hand, while there was only one situation that was unpleasant, there were others in which it was impossible to establish complete rapport; quite obviously these cases were less productive.

Private interviews are no doubt always desirable, but especially does this seem true in sociometric study. The interviewer did not have control over this factor in a few cases, and it was clear that the presence of others while the interview was being conducted tended to inhibit replies. One interviewee, who insisted that her four friends remain in the room, simply replied "Don't know" to every question. And in one of the early contacts, a college professor who was perfectly willing to cooperate was inhibited by the presence of his wife who would interrupt with "Don't answer that!"

It will be recalled that the interview not only asked for names, but in each case included a "why" question aimed at the reasons why that person was selected. It was the answers to these "why" questions and the additional comments they invited that gave real insight into the structure represented by the names that emerged.

Reasons "why" were not difficult to get. The interviewee had had to think the question through in his own mind before giving a name, so when the interviewer then said "Why did you select that person?" most answers were given spontaneously and freely. The interviewee was not pressed for reasons; the interviewer simply recorded exactly what was said. (There would be no point in pushing for reasons. For example, if Mrs. A says that Dr. Z is an important person to her because he's her doctor—that is a legitimate reason and were Mrs. A pushed into further reasons such as "Well, he's well liked; he does a lot of things" the picture of this individual's relationship with Dr. Z might be distorted. On the other hand, if a respondent voluntarily

gives four or five reasons for selecting a person, then that multiplicity of reasons also tells something about the interviewee and about the person selected.)

The important thing seems to be that *the reasons be recorded in the respondent's own words;* if the interviewer edits the replies, much of the flavor and accuracy of content will be lost.

There were four questions on the Southtown schedule on which it was difficult to obtain productive reasons for the selections made. These four questions were:

> Who would make you want to go out of your way to see a motion picture if he or she told you it was unusually good?
>
> Who would make you want to read a book or an article if he or she told you it was particularly good?
>
> Who around here has very good taste in house furnishings?
>
> Who around here shows especially good taste in clothes?

These questions were intended to get at names of close acquaintances, and the answers were in line with expectations for the most part. However, few respondents could give reasons for their choices; if reasons were given at all, they tended to be generalized, such as "Well, we like the same things" or "I just like the looks of her house" or "She's always well groomed." Perhaps such replies to these particular questions are adequate, but, as compared with the reasons given for choices on other questions, they provide little real insight about the respondents or the people selected. (These questions have been dropped in subsequent studies.)

But in general the "why" question served *to open up the respondent,* and much important information about people and the town developed through this opening. Even more, the "why" question sometimes proved invaluable in qualifying the position of individuals. An example is that of one man who ranked near the top in total mentions. But when the "why" responses were analyzed, it was found that a number said things like "Well, he must know a lot about it, but I wouldn't trust him" or "He's a smart man, I guess, but not for my money." Indeed, few persons who selected him gave reasons that indicated any real respect for him.

The interviewer took 163 completed interviews, and encountered only three refusals.[2] One factor that may have contributed to this degree of cooperation is that the town was accustomed to surveys. The college students had "practiced" on the townspeople and their reaction was one of willing

[2] See addenda.

cooperation. However, the Southtown study was done under outside auspices and the interviewer was a stranger to the town, so there was no claim upon the loyalties of the townspeople themselves.

While 163 interviews were concluded, this does not mean that the interviewer was welcomed by every one of these people with open arms. There were some instances where it was impossible to establish complete rapport either because of personality differences, or because of suspicion, antagonism, or lack of personal security on the part of the interviewee. An earlier mention was made of a respondent who replied "Don't know" to all the questions. She was willing to complete the interview, but gave nothing of value. In another instance the interviewee was friendly enough when she opened the door. But she refused to answer the first page, saying "No one can self-evaluate; I wouldn't do it." She was haughty throughout the interview and on many questions simply replied, "I wouldn't name one of them as being better than the other." As the interview neared completion, she became antagonistic and at the very last question said she would answer no more.

But all in all the results can be considered good. The completed schedules were examined for evidence of insufficient rapport by the interviewer through independent subjective review of the reports and the questionnaires. This analysis indicated that there were only 14 situations in which insufficient rapport had been established; there were 13 questionable situations (i.e., was the lack of complete response due to insufficient rapport or to personal factors); and there were 12 situations in which the interviewer judged the low rate of response to be due to the respondent's lack of acquaintances.

These 39 cases, which we will call the interviewer's list, were compared with the list of respondents in the lowest quartile (40 cases) in terms of number of mentions given. It was found that there were eight respondents included in the quartile list that were not included on the interviewer's list; and there were seven respondents included by the interviewer that were not covered by the quartile list. Further analysis of the two lists indicates that the subjective review provided the more accurate determination of lack of rapport. Thus, on six of the eight persons included in the quartile but not in the interviewer's list, the interviewer's reports stated that the respondent seemed to answer as well as he could and that she felt the "Don't knows" were honest ones; one of the eight was the previously mentioned professor whose wife wouldn't let him answer some of the questions; one was a religious fanatic—a member of a sect with few supporters in Southtown—and the four mentions this respondent gave seemed to just about cover her interests. None of these eight situations indicate insufficient rapport.

Turning to the interviewer's list, it was found that the 14 interviews judged to indicate insufficient rapport produced an average of 6.7 mentions (as compared with the average of 20.9 by the total group of 163 respondents). Two of the 14 respondents were men—one was a clerk in the local shoe store, about 60 years old, who seemed to be truly frightened at the idea of being interviewed; the other was a still older man who was deaf, had difficulty understanding the questions, and was completely disinterested in the whole idea. Of the women, two were suspicious; six simply did not want to be bothered (one left the radio on all the time the interview was being conducted and was more interested in the story that was being broadcast than she was in the interview); and two were well-known women and had positions of responsibility in the town. It would be expected that the latter two would cooperate fully, but the opposite proved to be true. The interviewer had a great deal of difficulty obtaining an appointment with one (six call-backs in fact were necessary) and after she finally succeeded, the interviewee refused to give more than one name to any question, simply saying after each response, "That's enough." The other woman (included in this category by the interviewer in spite of the fact that she gave a total of 20 mentions) seemed willing to be interviewed, but she gave no qualifying information about anyone and, because of her position, it was known that she was well able to give such information had she been willing to do so. The remaining two women were (1) the previously mentioned respondent who was interviewed in the presence of her friends; and (2) a respondent who seemed to live a retiring life, was husband-dominated and is included in this category because, although she had lived in Southtown 25 years, she gave only seven mentions.

The 13 persons making up the interviewer's "questionable" category gave an average of 9.6 mentions. Included in this group are three women over 70 years old, who do not get out of the house, and who quite possibly do not know very many people though they have lived in the town several years. This group consists of respondents who did not show any antagonism to the interview, but who just didn't give very many names, or who seemed to tire of the interview before it was finished. In all these situations, the interviewer felt it was definitely questionable whether another interviewer could have obtained more complete information.

As noted earlier, not every situation where few mentions are made can be considered as lacking in rapport, since there are individuals in Southtown who simply don't know many other people. Twelve respondents, giving an average of 7.2 mentions, were thus classified by the interviewer. Of these

five dislike the town and have little feeling of permanence. Mrs. OO, who had lived there three years, said "I'm still not a citizen of Southtown. I know lots of people at home. You don't take any pride in Southtown." Mr. PP, a resident of eight months, said he had found Southtown very disappointing and didn't know how long he would stay there. Mrs. QQ, had lived there 13 months but said "I don't even know if there is a Mayor." Two of the 12 lived on the outskirts of town and had small children which kept them at home. One said "There's no one important to me but my family." Four were low incomed and low educated and didn't fit into the social patterns of the community. (Mrs. RR reported that she "used to belong to the Missionary Society and liked it right well. But it made me feel bad when other folks could give money and I couldn't.")[3] There was only one of the 12 that was a fairly long time resident and this person was an isolate; she had been in only four houses in the six years she had lived in Southtown.

There were still other situations that promised to be difficult, but smoothed out as they developed. These are cases that try interviewers' souls, because they exemplify in exaggerated form what is faced every time an interview is begun. It is natural that every person should experience some hesitation and some doubts when he is first being questioned by a stranger. The interviewer's job is to establish a feeling of confidence and to change doubts into willingness without seeming to put pressure on the interviewee. It takes patience to establish that confidence; with some interviewees, there may be smooth sailing from the second or third question on; with others, constant readiness to reassure may be required through the final question. For example:

Interview No. 5

Mrs. SS was not anxious to cooperate. Several times she mentioned that she resented being questioned and that she had been taught as a child that it was very rude to ask direct questions of people. The interviewer each time offered to terminate the interview and destroy the questionnaire, but each time Mrs. SS replied, "I've gone this far, I might as well finish it." The schedule was very complete.

Interview No. 40

Miss Q was very antagonistic at first, but then said "Well, let's hear your questions." She objected to the idea because she said it was such a busy town and there were so many important things to be done. But she answered the questions freely (and then kept the interviewer 20 minutes beyond termination of the schedule to discuss her family of which she was very proud).

[3] See addenda.

Interview No. 45

Mr. TT definitely had a chip on his shoulder when the interviewer began. "Who's making this survey—and why?" he asked in about as many different ways as it could be asked. Finally, the interviewer offered to terminate the interview, but he followed her to the door and asked her to come back in. About half way through the schedule, he said "When you get back to New York, if I'm the only one that bothers to ask all the questions I did, you write and tell me what a fool I am." He answered the questionnaire most completely and volunteered considerable additional information.

Of the three absolute refusals, two were politely made. One was by a college instructor who professed not to believe in any kind of polling; another was by a young matron who claimed she couldn't stand to be pinned down by questions. The third led into the one nasty situation that arose in the whole interviewing procedure. The report on this is given here in its original form and detail as an, let's hope, extreme example of the difficulties that an interviewer must be prepared to meet. It required careful handling, since it could have developed to a point that might have made further interviewing in Southtown impossible.

Interview No. 82

Mrs. UU was cordial enough when she came to the door. She invited me in and I made the usual explanations. She then asked me many more questions, all of which I answered as best I could—such as "Who is sponsoring you in town?" to which I replied that the survey would not be appropriate if it were sponsored by a towns person. Then she wanted to know why I wasn't working through Southtown University—that she would think that ———— College (my sponsor) would work through them.

I showed her my credential letter from ———— and she carefully copied the letterhead and Dr. ————'s name. Then she wanted to know about me—said "Well, if you can ask me questions, then I can ask you some." I told her my husband was in the Army, and at Fort ————, where I was staying in town, and that I was leaving Southtown at the close of the survey, etc. Also—at every point where she evidenced reluctance about answering questions, I explained that she was under no obligations, and if she would rather not answer them, it was perfectly all right. She said "No, I'm always glad to be cooperative." And at one point, when I started to put the questionnaire back into the envelope, she said "No—let's hear the questions."

She answered page No. 1 without any difficulty, explaining first that the questions came at a peculiar time. She said she used to be very active in church and community affairs, but four years ago her husband was taken ill, and had to have a limb removed and that they had had a hard period of readjustment.

When it came to question No. 3, she said "Do you mean to tell me I'm supposed to give you names of people?" Upon my explanation (again) of why names were necessary, she said "Will you tell me whom you have interviewed and what they have told you?" I said "I'm sorry, but that is held in strict confidence. I'm not able to give you names. I have talked with university people and with several of the officials of the town, but I can't give you names."

At that point, she jumped up and said "You wait here. I'm going to make a telephone call about you." I replied "You are perfectly free to call whomever you wish. However, as I have explained to you, I'm not from Southtown and I know no one here."

Her telephone was within easy hearing distance and she called the ———— School, first asking for Mr. VV, the superintendent of schools, whom I had already interviewed. As he was not in, she asked for Mr. WW, the principal of the school. When he came on she said, "Mr. WW, do you know anything about a Mrs. Stewart who claims she is doing a survey for ————? . . . Well, she wants to ask me a lot of personal questions and it is all very mysterious. She will not give me any information—says it is all confidential, but she wants me to tell her things. . . . If she were a student, I could understand it, but she is a *service man's wife*."

When Mrs. UU came back from the phone, she said "I don't believe I care to answer your questions." I said "That's perfectly all right. And I have no objections to your checking up on me, but I certainly do object to your not telling the truth." (I had been with Mrs. UU for at least 15 minutes, explaining the survey and talking with her, answering her questions, etc., and for her to say that I refused to give her any information was a flat lie.) I told her that her telephone conversation made it essential that I see Mr. WW immediately and that I certainly would go direct to his office.

I did so, gave my name, was admitted at once, and told him that while I had wanted very much to interview him I had planned to see him outside of office hours. However, Mrs. UU's conversation with him had made it necessary that I see him immediately, as she had not told him the truth.

I explained the situation to him, showed him the letter from ———— and told him I had showed it to Mrs. UU. He was very nice and himself suggested that I interview him right at that moment. I asked if he would call Mrs. UU, as I felt that she was a dangerous woman, a trouble-maker, and I would appreciate his setting her right on my status. Whether he did do so, I have no way of knowing.

Some refusals are inescapable in just about any investigation, human nature being what it is. But the interviewer recognizes it is her responsibility to keep the "non-interviewables" to the absolute minimum. And the

conscientious interviewer can find real satisfaction in making a friend out of an opening antagonist. The Mrs. UUs are rare, fortunately, for there is little that can be done about them. But the other cases cited above are more typical and it is in this area that the greatest challenge is presented.

Summary

There is a great deal of material on interviewing to which one might refer.[4] But this is an experience report, not a technical paper. And these concluding impressions are offered because interviewing on a sociometric survey appears to present some problems not found in other forms of social research or in standard commercial interviewing.

The participant observer, for example, has time on his side; he can get inadequate data at one time, and fill in his gaps on several future occasions. However, the sociometric interviewer has to be right all the time, getting the feeling of the community and of the individual in a single 30-minute interview.

Many of the principles applying to market research or public opinion polling are equally applicable to sociometric interviewing. But in one particular they are decidedly different. It's one thing to ask strangers for a simple "yes" or "no" on an opinion question of general interest, or to ask a relatively impersonal question like "What brand of coffee did you last buy?" It's quite another matter to ask people to reveal as much about their friendship ties as the sociometric survey demands. It is very revelatory of them, and such questioning runs up against a natural hesitancy to disclose details that if made public could be embarrassing to the interviewee, the person mentioned, or both.

Respondents know that they are being placed in a position where they do not have control over what happens to their revelations. So, in addition to saying that the need for good rapport is enlarged many times, it is fair to conclude that (a) the interviewer must be one that can and does reassure that responses will be treated confidentially; (b) the interviewer must, therefore, command a full measure of respect and confidence; and (c) an impeccably academic, non-partisan, scientific sponsorship is essential.

The feeling of free, spontaneous conversation is what is looked for in a filled out interview form. So the sociometric interview cannot be conducted on a hurry-up, mechanical basis; if it is done in such a manner much valuable information about the person will be lost. The interviewer cannot be satisfied with recording only direct answers to the questions on the

[4] See addenda.

schedule, but must be constantly alert to comments and observations that qualify or enhance the answers given. (And, elementary as it may seem, accurate recording of the comment material is an imperative; the investigator wants neither a distilled, academically cryptic, nor a prettied up version of what the respondent said.)

All this does not mean that open community, sociometric interviewing is necessarily more difficult than any other. But it is *different,* and it does seem to call for *motivation on a higher order* than that in a commercial situation.[5] Take it from one who has rung a lot of doorbells—intellectual interest in and full understanding of the project make all the difference.

ADDENDA

By Frank A. Stewart

This informal report of interviewer experiences in an open community sociometric survey at the adult level is presented as an indication of some of the problems that may be expected in such work. It may be that little that is new to a close student of interviewing practice will be found here, but it is suggested that these and the experiences of others warrant thought if only because the interviewer's contribution to an investigation is always crucial.

(2) The 2% refusal rate experienced in Southtown may be contrasted with the 14% rate reported by Harding (Hadley Cantril, *Gauging Public Opinion,* Princeton, 1944, pp. 119-123) and the 12% rate experienced in the Astoria-Sunnyside (N.Y.C.) sociometric sampling (unpublished as of this date). In a sense, refusals represent failures (whether of the interviewers' training or of the questionnaire construction, as usually suggested, or—more basically perhaps—of the personal interview technique itself); so it is not surprising that the literature contains little on this source of possible bias.

Alderson has called generally for more research on the effect of refusals (Albert B. Blankenship, Ed., *How to Conduct Consumer and Opinion Research,* New York, 1946, p. 298.) And it may be needed especially in sociometric work, since the personality type that refuses an interview can well be quite different than the population as a whole in terms of sociality and personal interaction.

(3) It has already been noted that acquaintance range in Southtown correlates with socio-economic status, with higher income people giving a greater number of name mentions than those of lower status (Stewart, p. 23). Like results are found in two pieces of 1947 research—a 775-interview study in a Northern city of 15,000 population, and an 890-interview study in Astoria-Sunnyside (N.Y.C.)—with both showing that high income respondents give nearly twice as many name mentions as do low income respondents. See also Genevieve Knupfer, "Portrait of the Underdog," *The Public Opinion Quarterly,* Spring 1947, 11, 1, 103-114, for well developed evidence on the restricted social lives of lower status people.

[5] See addenda.

(4) The following recent references may be of interest to those wanting more extensive discussions of various aspects of field work.

On detailed "how to do it" material for interviewers:

Carolyn F. Bader, *The Interviewer's Guide,* St. Louis, 1947.

National Opinion Research Center, *Interviewing for NORC,* Denver, 1945.

On general summaries of interviewing problems:

Albert B. Blankenship, *Consumer & Opinion Research,* New York, 1943, pp. 138-151.

George A. Lundberg, *Social Research,* New York, 1942, pp. 349-396.

On discussion of specific topics of current interest:

Archibald S. Bennett (and others), "Survey on Problems of Interviewer Cheating," *International Journal of Opinion and Attitude Research,* Spring 1948, 2, 1, pp. 89-100.

Albert B. Blankenship (and others), "Survey on Problems of Interviewer Cheating," *International Journal of Opinion and Attitude Research,* September 1947, 1, 3, pp. 93-106.

Lloyd E. Borg, "Interviewing School," *International Journal of Opinion and Attitude Research,* Fall 1948, 2, 3, pp. 393-400.

Don Cahalan, Valeri Tamulonis and Helen W. Verner, "Interviewer Bias Involved in Certain Types of Opinion Survey Questions," *International Journal of Opinion and Attitude Research,* March 1947, 1, 1, pp. 63-77.

Hadley Cantril, *Gauging Public Opinion,* Princeton, 1944, (chapters on Trained vs. Untrained Interviewers, The Reliability of Interviewers' Ratings, and Interviewer Bias and Rapport), pp. 83-118.

Leo P. Crespi, "The Cheater Problem in Polling," *The Public Opinion Quarterly,* Winter 1945-46, 9, 4, pp. 431-445.

Stuart C. Dodd, "Standards for Surveying Agencies," *The Public Opinion Quarterly,* Spring 1947, 11, 1, pp. 115-130.

Kenneth Fink and Robert G. Lutz, "Fieldwork in the New Jersey Election Prediction," *The Public Opinion Quarterly,* Winter 1948-49, 12, 4, pp. 724-726.

Lester Guest, "A Study of Interviewer Competence," *International Journal of Opinion and Attitude Research,* December 1947, 1, 4, pp. 17-30.

Natalie Harris and Gordon M. Connelly, "A Symposium on Interviewing Problems," *International Journal of Opinion and Attitude Research,* Spring 1948, 2, 1, pp. 69-84.

George H. H. Huey, "Some Principles of Field Administration in Large-Scale Surveys," *The Public Opinion Quarterly,* Summer 1947, 11, 2, pp. 254-263.

Selden Menefee, "Recruiting an Opinion Field Staff," *The Public Opinion Quarterly,* Summer 1944, 8, 2, pp. 262-269.

Sam Shapiro and John C. Eberhart, "Interviewer Differences in an Intensive Interview Survey," *International Journal of Opinion and Attitude Research,* June 1947, 1, 2, pp. 1-17.

Paul B. Sheatsley, "Some Uses of Interviewer-Report Forms," *The Public Opinion Quarterly,* Winter 1947-48, 11, 4, pp. 601-611.

And on opinions of interviewers as to how to obtain better results in commercial polling:

Archibald S. Bennett, "12 Ways to Improve Field Research," *Advertising & Selling,* 40, 12, pp. 48, 90, 93.

(5) It can hardly be denied that we will have good sociometric interviewing only if our interviewers are highly motivated. Possibly analogous is Radvanyi's finding in the field of public opinion polling that "experiences in Mexico have led to a preference for the nonpaid interviewer, who does the work because of a sincere interest in this new science and has his main satisfaction and compensation in the work itself." The paid interviewer in Mexico, he finds, is inferior in honesty and adequacy of effort. (Laszlo Radvanyi, "Problems of International Opinion Surveys," *International Journal of Opinion and Attitude Research,* June 1947, 1, 2, pp. 30-51.)

The data with which social scientists work are good or bad depending on how they are collected. The sampling method and the schedule content are crucial, but all else will stand or fall on how well the interview is handled. The interview may well be the weakest link in current market and opinion research, or in any *extensive* social science survey; hence, the survey manager will want to push for optimum motivation along with thorough training and adequate supervision in the field.

SAMPLING PROBLEMS IN INFLUENCE STUDIES

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Since 1943 at least eight studies of villages and small cities have been made to determine sources and channels of influence.[1] In each case data have been obtained in field interviews in which respondents were asked to name fellow townsmen whom they considered important, influential, well-informed, able to secure community cooperation, looked up to, etc. The canvass, in each case, has resulted in the designation of a number of leaders or community influentials. The pattern and scope of their influence has then been inferred from reference to the question on which each leader was named, the total number of respondents designating him or her as leader, and the characteristics of respondents who agree in designating a particular person as leader.

The number of respondents interviewed in these studies has ranged from 2 per cent to possibly 35 per cent of the adult population of the community. The 2 per cent samples were used in two studies whose principal purpose was to explore techniques. Another small sample was used in a study aimed at locating a sample of influentials rather than the full roster of community leaders. One investigator has suggested that a random sample of about 20 per cent of the households may be the minimum size for practical use in this type of research. Some evidence will be offered presently which indicates that if leaders are to be ranked in order of the number of respondents who name them in a 100 per cent canvass, a sample of the order of 50 per cent may be inadequate.

The sampling problem in influence studies differs from the sampling problem in ordinary attitude studies in that the questions about influence are open-ended. In ordinary attitude studies the respondent is limited to choice between a small number of responses, usually five or less. In a very

[1] Frank A. Stewart, "A Sociometric Study of Influence in Southtown," SOCIOMETRY X, I, 1947, pp. 11-31; Part II, same title, SOCIOMETRY X, 3, August 1947, pp. 273-286. Robert Bartels and Frank A. Stewart, "How Briarcliff Manor Took Inventory," *The American City*, September 1948. Frank A. Stewart, "A Study of the Leadership Structure in Selected Astoria and Sunnyside Blocks," unpublished. Stewart reports two other studies in which he acted as consultant. Also unpublished are Robert K. Merton's study of "Revere" on the eastern seaboard, Paul F. Lazarfeld's study of a city in the mid-west, and a study of a far western small city conducted by the Department of Sociology of the University of Washington.

large proportion of cases he accepts the limitation and names one of the alternatives which are offered. If he should refuse, his response is classified in a very small residual category.

When it is known that virtually all responses must fall in one of five categories or less, and that each category will be mentioned, it is possible to infer population attitudes from sample attitudes reliably so long as the least popular category contains some agreed minimum number of cases. This condition sets the size of the sample required, and, in turn, the agreed number of cases in the smallest category is determined by the accuracy of prediction desired.

It follows that, other things being equal, a smaller sample is required for prediction of population attitude from sample attitude when all responses fall in two categories than when they fall in three categories or more. The larger the number of categories of response, the larger the sample required for a specified accuracy of prediction, other things being equal.

In influence studies, the number of different responses to such a question as: "Who, in your opinion, are two of the most outstanding business leaders in this community?" is known to be large. Even if persons designated by only one respondent are classified in a residual category, there may be 100-150 other persons mentioned more than once in a community of 5,000. This fact alone indicates the need for a sample much larger than would be sufficient if respondents had to choose between two or three candidates, or five. But the additional complicating factor in influence studies is the fact that the number of persons who would be named at all, if a 100 per cent canvass were made, is indeterminate. Besides depending on the size of the community it is, in part, a function of the question asked.

If a community has but one watchmaker, and the question is: Who knows the most about mending watches in this community? then, excluding "Don't knows", a sample of one is adequate for predicting population attitude. The sample must be larger if the question is about mending broken bones, and there happen to be three orthopedic surgeons in town. If there are 20 barbers and the question is about hair cutting the sample must be still larger. Specialization of these services makes it possible, however, to estimate the number of different responses expected by taking a count of watchmakers, orthopedic surgeons and barbers. But "leaders" in many phases of community life do not hang out their shingles announcing the fact. Will every business man be considered a business leader by at least one of his customers or associates? Will every woman be named as having especially good taste in furnishing her home by at least one of her neighbors or club-

mates? These questions may be answerable after a complete canvass of a community, but not before.

Because the number of different responses to an influence question which would be made in a complete canvass is indeterminate, and because empirically it has been found that a large number of persons who are designated receive the vote of only one respondent, it may be concluded that sampling is not appropriate when it is desired to know every person who would be named at least once. The probability of omitting leaders who would be mentioned in a complete canvass becomes less if it is required that at least two or three votes be received to qualify as a leader. There is evidence from empirical findings that as the sample increases by each successive hundred schedules, the leaders mentioned for the first time tend to be persons not subsequently mentioned in the rather large sample. There is, however, no empirical evidence to show that persons mentioned once by the sample might not receive a second or even a third vote if the sample were made still larger.

For some purposes the investigator may be content to discover the most frequently designated 1 per cent or 2 per cent of the adult population, for example, being willing to overlook others less frequently named. The problem then becomes one of estimation.[2] It is assumed that if a complete canvass is made, the leaders can be arrayed in the order of the number of respondents who designated them. A sample of the population is then interviewed and the leaders named by the sample are arrayed in order of the number of respondents in the sample who named them. If it is desired to predict the 35 leaders who would be at the top of the population array, how many of the leaders at the top of the sample array would have to be considered so that all of the population leaders would, within certain probability limits, be included among them? This depends on the size of the sample. For very small samples, either no inference is possible, or the entire sample array must be included. A second factor affecting inference is the number of leaders at the top of the population array that must be predicted. It may require a smaller *sample* to afford prediction of the top two or three population leaders than the top 20 or 30; and a relatively smaller *slice* of the sample array may be needed to predict the smaller number of population leaders.

The distribution of responses to influence questions is known to be

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[2] Professor Z. W. Birnbaum of the Mathematics Department of the University of Washington was kind enough to consider this sampling problem. However, the explanation of the matter attempted here, so far as it lacks rigor or clarity, is the sole result of the writer's mathematical inadequacies.

rather heavily skewed to the right, but otherwise little or nothing is known about its parameters for any specific question. Without more knowledge of this distribution, the problem of estimation as stated above cannot be answered. One approach to the problem might be for those who have secured responses from 100 per cent of the members of a small population on a given question to pool their knowledge of distributions of choices received on that question and thus arrive at a first approximation of the distribution to be expected in larger groups. Or, a person with data from such a 100 per cent canvass might draw successively a large number of random samples of one size and then another size until it was found what size sample afforded the desired prediction for his group on his question.

The writer has such a set of data, but, as the question asked seemed not widely applicable, many samplings have not been undertaken. What is here offered is a comparison of predictive results from random samples of varying sizes from 10 per cent to 60 per cent in one drawing. For each of 148 persons interviewed there was a card recording the names of those he chose within this group of 148. By a rather complicated procedure believed to ensure randomness, these cards were drawn, one by one, the order of drawing of each being noted. After a card was drawn it was not replaced, since it is a rule in influence studies that a respondent may choose only once. After 10 per cent of the cards were drawn they were not replaced before drawing a second 10 per cent sample. This procedure may be open to some criticism on the ground that if the first 10 per cent sample were extremely deviant its results would tend to color all succeeding samples of larger size. In effect, the *ex post facto* experiment reported here attempts to be a model of the following field situation:

We interview 10 per cent of a group of 148 persons at random; we then interview the same *number* of persons at random from those who have not yet been interviewed, adding this number to the first 10 per cent so that now we have interviewed 20 per cent of the group at random. This procedure is continued until we have interviewed 60 per cent at random. Since this is *ex post facto,* and the distribution of responses from the complete canvass is known, we may ask: At what point in this interviewing might we have stopped with satisfactory predictive results?

In May, 1943, every member of a student body of a teachers college responded to questioning on friendship choices within the group, making 837 choices, or 5.7 per capita.[3] The distribution of choices received is shown in Table I.

[3] Raymond E. Bassett, "Cliques in a Student Body of Stable Membership," SOCIOMETRY, VII, 3, August 1944, pp. 290-302.

TABLE I
DISTRIBUTION OF FRIENDSHIP CHOICES RECEIVED IN 100 PER CENT CANVASS OF A STUDENT BODY

Number of Choices	Frequency
27	1
22	1
19	2
18	1
14	2
13	2
11	4
10	6
9	6
8	10
7	13
6	17
5	16
4	17
3	19
2	16
1	10
0	5
	148

So much skewness to the right is shown in this distribution that the standard deviation loses some of its usefulness as a parameter. If most chosen persons were to be defined as those receiving choices numbering more than one standard deviation above the mean, then the 19 persons receiving ten or more choices would be included. The top 27 persons in a 60 per cent sample array included only 16 of these 19 persons. Smaller sample arrays afforded even less accurate prediction.

From knowledge of the distribution of choices from the complete canvass, the greatest probability of correct inference from a sample as small as possible would seem to be for the number of most chosen persons appearing above breaks in the distribution, either the one most chosen, the two most chosen, the five most chosen or the nine most chosen. (The corresponding breaks are 22-27, 19-22, 14-18, and 11-13 respectively.) We shall consider each of these four objects of inference in order.

The one most chosen girl appeared among the top 14 most chosen in the 10 per cent sample, six persons receiving more choices and seven receiving the same number. In the 20 per cent sample she was among the top nine, six receiving more choices, possibly due to unfavorable bias from including the first 10 per cent sample in the 20 per cent sample. In the 30 per cent sample she was among the top 20, with 12 receiving more choices. In the 40 per cent sample she was in the top five tied for fourth, and in the 50

per cent sample she was fourth. In the 60 per cent sample she was in a three-way tie for first.

The two most chosen girls followed the same pattern through the 40 per cent sample since the girl receiving 22 choices in the complete canvass was chosen an equal or greater number of times than the girl receiving 27 choices in all of the first four samples. The two most chosen girls were among the top five of the 50 per cent and 60 per cent sampling arrays.

The 10 per cent sample did not choose the fifth place girl and so afforded no prediction of the five most chosen or the nine most chosen. The top five of the population were among the top 17 chosen by the 20 per cent sample, among the top 20 of the 30 per cent sample array, among the top 10 of the 40 per cent sample array, among the top 17 of the 50 per cent sample array and among the top 6 of the 60 per cent sample array.

In the 60 per cent sample array the top 16 girls included the top nine in the population array and this is the only sample array from which a useful inference about the group of nine leaders could be made. However, it would have been possible to make fair prediction of eight of the nine leaders from smaller sample arrays.

The interpretation suggested from the above findings is that in a distribution of friendship choices like the one above, in which choice is believed to depend more on primary group relationships than on prestige, the results emerging from sampled responses by no means predict the exact position of a highly chosen person in the group. From such sample results one would do well to infer only that the top chosen persons include among them some of those who would be top chosen in a complete canvass. If the sample is relatively small, even such a claim seems shaky. Until many successive samplings are made from data in which the results of the complete canvass are known, this interpretation can stand only as a caution, rather than as a generalization.

For purposes of validation or for other reasons, an investigator may be interested in observing as many mutual, or reciprocal choices as possible. For this purpose a sample taken by the "wave" method is superior to a purely random sample. In the wave method a small random sample is interviewed, and then the persons chosen by members of this sample are interviewed.

In the *ex post facto* study here reported the original 10 per cent random sample chose four of their own number, and 58 other students who made up the second "wave" to be interviewed, a total of 73 respondents. In the 50 per cent random sample, with which the responses of this wave

sample were compared, were 74 respondents, including the one student who, when interviewed, declined to make any choices. The two samples are thus alike in size. The original 15 of the 10 per cent random sample and 26 other persons were identical in both samples. Table II shows the distribution of choices received by members of the population from each sample.

In the wave sample of 50 per cent, the prediction of the one, two, five and nine girls most chosen in the complete canvass was slightly better than in the random sample. Table III shows this comparison.

About all that can be said for the superiority of the wave sample based on the above data is that in this single instance it appeared increasingly superior as larger numbers were to be predicted. For repeated trials this might not be the case. But the table may again call attention to the uncertainty of inference from even a 50 per cent sample of a population's friendship choices.

But the chief advantage claimed for the wave method is that it is likely to bring to light more mutual choices and thus more fully indicate the net-

TABLE II

DISTRIBUTION OF CHOICES RECEIVED BY MEMBERS OF THE POPULATION COMPARED FOR TWO SAMPLING METHODS

Choices Received	Wave Sample (50%)	50% Random Sample
14	1	0
13	0	1
11	1	2
10	2	1
9	2	1
8	1	0
7	4	5
6	6	7
5	10	12
4	20	16
3	26	24
2	25	28
1	23	29
0	27	22

TABLE III

COMPARISON OF 50 PER CENT SAMPLES BY WAVE AND RANDOM METHODS IN PREDICTING MOST CHOSEN PERSONS

Number at Top of Population Array to be Predicted	Smallest Number at Top of Sample Array which includes All Persons to be Predicted	
	50% Wave Sample	50% Random Sample
1	4	4
2	4	5
5	11	17
9	27	45

work of communication among those whom it samples. It is intentionally biased toward securing mutual choices since the interviewing of all persons chosen by the original small random sample (in our case 10 per cent) assures observation of all mutual choices involving members of that sample. Before inquiring how well the wave method succeeds in this respect, a word might be said about the value of mutual choices as validating evidence.

In one type of influence question, the informant is asked: "Whom *would* you choose as friend?" A mutual choice based on this question indicates a mutuality of intention of two informants and perhaps no more.

But an informant may be asked to report not his desires but his continuing behavior. "With whom *do* you occasionally participate as a friend?" If two informants are interviewed independently and each names the other as co-participant in a given form of friendship activity, this evidence tends to be corroborative. We can put more stock in what the informant tells the interviewer. What has usually been thought of as a mutual response becomes a validating response.

When friendship choices are made only by a sample of the population which may receive such choices, no mutuals involving persons named outside the sample can be observed, since the responses of such persons are not secured. Let us assume that we accept as data for a given study only validated or mutual choices, and that these are distributed at random throughout the population. The most probable number of mutual choices expected to be secured is, then, the most probable number of times members of a sample choose within their number. Since a respondent may not choose himself, the number of possible alternative responses is $N - 1$, of which $n - 1$ are included in the sample. Thus the probability of a choice falling within the sample is $n - 1/N - 1$. If each member of the sample makes approximately the same number of choices, k, then the total number of choices made by the sample is kn, and the most probable number of these choices falling within the sample is $k \frac{n(n-1)}{N-1}$. If we have a complete canvass ($n = N$) this expression becomes kN. Dividing the most probable number of choices falling within a sample by kN gives us the proportion of choices we may expect to observe falling within our sample, the quotient being equal to $\frac{n(n-1)}{N(N-1)}$. But n/N is the size of the sample in percentage terms, which we shall designate by p, and, for large N and reasonably large n, the expression $n - 1/N - 1$, designated by p′, approximates p in value. Thus the proportion of choices we may expect to observe in our sample is

given by pp′, or approximately the square of the size of our sample in percentage terms. We are now ready to consider what happens when the size of the sample is increased, and we find that the proportion of choices expected to be observed within the sample increases not as the size of the sample, in percentage terms, but as the square of that size. Thus an increase from a 10 per cent sample to a 20 per cent sample increases our expectation of finding recipients of choices within the sample from 1 per cent to 4 per cent. Doubling the sample quadruples the expectation of finding recipients of choices within the sample. But for larger samples the probability of observing large proportions of mutuals is disappointingly small. A 50 per cent sample provides an expectation of finding only 25 per cent of the choices falling within the sample. To observe half the mutuals requires approximately a 71 per cent sample. Thus it is that when a study hinges on the validation of choices, as in the case of studies of self-designation of leaders, the wave method of sampling is found almost necessary.

In the teachers college study on which the *ex post facto* experiment was made, the questions were of the mutual rather than the validating type. However, in the 50 per cent wave sample of this data, 166 mutual choices were observed, compared with 90 mutual choices in the 50 per cent random sample. This illustration may indicate something of the superiority of the wave method in increasing observation of mutual or validating choices.

FAMILY FRIENDSHIP WITHIN THE COMMUNITY

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Friendships made by the family within the community concern a different type of interaction than that involved in individual friendship formation since both husband and wife must agree on the family friends. Although these friendships involving the interaction of at least four persons may be complex, they can be related to certain observable factors in the community. A veterans' housing community of 1,000 family units on a Middle Western University campus offers an opportunity for investigation of this type of friendship formation.

This community is very homogeneous in most respects. The couples living there are of about the same age, most of them being between 20 and 30 years. Only a few of the men are not veterans of the past war. Since they are all attending college, the men not only have the same vocation, that of students, but also they are of approximately the same economic status. Even the dwellings are of a uniform type. In addition, the community is far more transient than the average community, and probably none of the residents regards it as a permanent home. While this certainly is not typical of the average American community, a number of questions can be asked here, the answers to which may have general application. How many friends does a young couple have? Does the number of friends increase with the length of residence in the community? What effect does the presence of children have on the number of friends? These are but a few of the questions about families and their friends that are considered in this study.

The study is based on personal interviews with 70 student veteran families, this sample constituting 7% of the community. The purpose is to discover how the number of family friends and acquaintances is related to certain other variables in the family situation. By family friend is meant another couple whom both husband and wife consider a "friend." Acquaintances are all other persons known to both husband and wife at least by name. The results may be summarized in seven general conclusions.

1. *Most young married couples have very few friends within their community.* Despite the apparent congeniality of interests and the similiarities in age and background among the families in the veterans' community, the median number of family friends is 2. The range of family friends is 0-9, but the distribution is considerably skewed and most subjects cluster about

the lower end. Naturally, the number of one's friends depends on one's definition of a "friend." The couple who list nine friends, but can think of little they have in common with them, and define a friend as "someone who is easy to talk to" are probably listing what others would consider acquaintances. The definition of friend therefore depends on the meaning attached to it by the family questioned. A discussion of the usual definition of a friend appears in point no. 7. 22% of the sample have no friends. The median number of acquaintances is 9, and these range in number from 1-35 with many individual differences. These findings which are implicit in most of the subsequent conclusions are contrary to the expectation that because young couples are socially minded and not as yet fixed in their ways, they should easily make many friends in their adjustment to a new community.

2. *The number of family friends and acquaintances in the community increases with the length of residence.* The 70 families questioned have resided in the community from one month to three years, the average being 12½ months. Those who have lived there from one to 10 months have a median number of 1 friend and 6 acquaintances. The residents of 11-18 months have a median of 1 friend and 10 acquaintances, and those of 19-36 months have 2 friends and 15 acquaintances. It is interesting to note that the family questioned who has been in the community longest, 36 months, has no friends. This indicates in part that the ability to make friends is an individual attribute which varies with observable factors only in a general way. It should be realized that the massing of data to show these trends may partially obscure such personal differences. The increase in number of family friends with length of residence is what might be expected since longer residence allows for more contact with neighbors and thus more possibilities for friendship formation.

The couples who have lived in the community longest tend to be the ones who have been married longest, so that when the sample is divided into three groups for length of marriage, the results are quite similar to those for residence. The median number of friends and acquaintances for the first group which have been married from one month to two years is 1 friend and 7 acquaintances. The second group have been married from two to five years and the median for them is 2 friends and 10 acquaintances. For the third group which have been married from five to nine and a half years, the median is 2 friends and 12 acquaintances. It seems likely that there may be a difference between newly-wedded couples and those married for a longer time which is not accountable only in terms of length of residence. Couples married less than one year have 0 friends and 4 acquain-

tances (mdn). This could result from the fact that newly-wedded couples in the community are largely absorbed with their adjustment to each other and their assumption of new roles in married life.

3. *In this community, the number of friends and acquaintances varies with the presence or absence of children in the home.* Only 30% of the total sample interviewed do not have children. 50% have one child, 17% have two children, and 3% have three children. Those families with no children have a median of 1 friend and 6 acquaintances while the median for the families with children is 2 friends and 11 acquaintances. Not only do neighbors sometimes meet each other because their children play together, but quite frequently they find that the most consuming interest they have in common is their children. Although many childless couples tend to be amused by their friends' talk of formulas and schedules, this talk is evidence of an "in-group" in which they can not share.

4. *The number of family friends increases with the amount of social activity of the family.* In order to measure the amount of social activity, an entertaining score was derived for each couple based on the number of visits, dinners, and parties given per month. Each social visit in the home which did not include a meal was given one point, each dinner, two points, and each party, three points. The resulting figure is used to indicate the amount that any one couple entertains in relation to the rest of the group. 16% of the families do no entertaining and have 0 friends and 4 acquaintances (mdn). In contrast, the 16% who do the most entertaining (median score 16 points) have 3 friends and 10 acquaintances (mdn). The average family in terms of amount of social activity has 2 friends and 8 acquaintances and entertains for two visits and one dinner per month. Some families suggest that their trailer, barracks, or quonset is really too small for entertaining; however, since the majority find room, the obstacle seems to be psychological rather than physical. Although the number of acquaintances does not increase so much with an increase in social activity since presumably, acquaintances are infrequently included among those entertained, the number of friends shows a considerable increase. The number of friends increases more with an increase in social activity than with any other variable studied. Nevertheless, from this concomitant variation it is impossible to assume a particular causal connection since it is not clear whether certain families have more friends due to their entertaining or, because they have many friends, they find it necessary to entertain frequently.

5. *The number of family friends varies inversely with the monthly expenditures for recreation outside the home.* For half the families in the

sample who spend $5 or less per month on recreation outside the home, the median is 2 friends and 9 acquaintances. Those families who spend $5 to $50 (median $10) have 1 friend and 8 acquaintances (mdn). This suggests that the families who spend the most on themselves may do so because they prefer their own company to that of friends. Or it may be that because they have few friends they are forced to seek entertainment by themselves. Since none of the expenditures for recreation is very great, a study of a non-college community where the extremes in recreation expenses for a family are greater might show this trend more definitely.

6. *Most of the family friends are first met by the husband.* Contrary to the generally accepted belief that the wife plays the leading social role in the family, in 48% of the cases the husband is the leader in initiating family friendships. The wife meets 29% of those who become friends of the family, while 23% are met by the husband and wife together. Therefore, the interests and personal preferences of the husband affect most strongly the friendships which the married couple will make.

The most common meeting place for most of the family friends is the veterans' community.

Initial Meeting of Friends

Veterans' Community	47%
Previous Community	24%
Occupational Situation	20%
Interpersonal Situation	9%

47% of the friends are met within the community where many opportunities for meeting new people exist in the Co-operative Store, Nursery School, and Utility Houses. In barracks and quonsets, two families share the same building, while a number of trailer dwellers use a centralized bath. The previous community refers to either the hometown where 15% of the friendships were made or the college town where 9% of the families had become acquainted as neighbors. The practice of returning to the hometown or former neighborhood to visit old friends is observable in other than college situations. This suggests a proposition that once a person moves from a neighborhood, his former neighbors become closer friends because it is easier to renew these old acquaintances than to form new friendships in the new situation. This is not one of the points particularly covered by this survey and it would therefore require further investigation. The occupational situation includes meeting in the same course or club in college (13%) or working (7%). The major factor in the interpersonal situation is meeting through an introduction by a mutual friend (8%). Although those couples with

children, 70% of the sample, tend to have more friends than childless couples, only one family reports that they meet their friends through their children.

7. *Most people define a friend in either functional or companionable terms.* Forty percent of the families think of a friend as "someone who will help you and stick by you when you are in trouble" and 53% say a friend is "a person who is easy to get along with, one with whom you feel at home." It seems probable that the persons who expect their friends to stand by in an emergency also find their friends easy to get along with in normal situations. These people are then describing more the role of a friend rather than the criteria for one. When the couples interviewed were presented with the question, "How do you define a friend?" most of them were unable to respond immediately since they had never before examined the basis for their friendships. Only a few, 4.3%, had a ready answer, the cliche attributed to Mark Twain that "a friend is one who knows all about you, but likes you just the same." 11.4% stressed the quality of not gossiping; "a friend is one who will respect your confidence." 14.3% defined a friend as one who has the same interests. (Taken together, these definitions total more than 100% of the sample since some families included several points in their answer.)

Although only 14.3% express the idea that common interests are very important in friendship, all families cite some interests they have in common with their friends. The interests underlying 208 family friendships are compiled in the following table.

Common Basis for Friendship

Recreation	*30%*	College	*20%*
Cards	9%	Same course	13%
Shows, picnics, dances	8%	Department staff	4%
Sports	6%	Both students	3%
Hobbies	6%		
Drink	1%	Background	*12%*
		Same state	5%
Living Situation	*29%*	Hometown	5%
Children	15%	Military Service	2%
Neighbors	7%		
Living conditions	3%	Other	*9%*
Wives' activities	2%	Religious ideals	4%
Fixing place	2%	Conversational ease	2%
		Mutual friends	1%
		Miscellaneous	2%

Summary

The investigation of the variables related to quantitative friendship reveals that most families have few friends within the community. A positive correlation exists between the number of friends and the length of residence in the community, the presence of children in the home, and the amount of family social activity. There is a negative correlation between the number of friends and the amount of monthly expenditures for recreation outside the home. In first meeting the people who later become family friends, the husband plays the leading social role. The material concerning the definition and common basis for family friendship indicates the complex nature of friendship formation and suggests that this is a question for further study.

SOME RELATIONSHIPS BETWEEN INTERPERSONAL JUDGMENTS AND SOCIOMETRIC STATUS IN A COLLEGE GROUP[1]

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Popular analyses of personality commonly take the form of judgments or ratings of an individual with reference to various trait dimensions. Since judgments of this sort evolve from personal interaction within a group framework, it is reasonable to expect that they will bear some relationship to the sociometric features of the group concerned. Sociometric choices or rejections are themselves personal judgments which may rest to some extent upon specific trait evaluations. But more important, perhaps, in a group of known characteristics the sociometric position of an individual furnishes some clues to his opportunities for observing or being observed by others, to the opinions he will hear and value, to his own insecurities and aspirations, to various factors, in brief, which may conceivably influence the ratings he gives and receives. This approach to interpersonal judgments, then, may reveal significant functional aspects of sociometric structures.[2] It may also contribute to an understanding of the conditions under which valid judgments of personality may be obtained.

The work reported here is exploratory in nature, designed to obtain evidence concerning the relation of the sociometric status of an individual to: (1) the group's rating of him with reference to several personality characteristics; (2) ratings of him by individuals of varying sociometric status; (3) his ratings of himself.

PROCEDURE

The subjects comprised the 34 girls living in one of the sorority houses on the Northwestern University campus. All of the girls had lived together for at least two months during the academic quarter in which they were studied. Eleven girls had not lived in the house prior to that quarter, but they as well as the others had been affiliated with the sorority for at least two previous quarters. The ratings and sociometric data reported here

[1] This study was supported by a grant from the Research Committee of the Graduate School of Northwestern University.

[2] Other important correlates of sociometric structure have, of course, been reported by various investigators. See, for example; Moreno, J. L., *Who Shall Survive?* Washington, D. C.: Nervous and Mental Diseases Publishing Co., 1934; Jennings, H. H., *Leadership and Isolation.* New York: Longmans, Green and Co., 1943.

were obtained in one evening at the sorority house after several prior contacts with the girls, both individually and collectively.

Ratings

Each girl was asked to rate herself and every other girl on each of six traits: punctuality, sociability, fairmindedness, intelligence ("intellectual quickness"), self-confidence, and sense of humor. The instructions read:

> "On each of the following six pages you are asked to rate every girl in the house on a particular trait. For example, on the first page you will find the following heading:

IS SHE PUNCTUAL OR LATE FOR APPOINTMENTS?

	Always prompt		Occasionally late			Frequently late			Always late
	9	8	7	6	5	4	3	2	1
Jane Doe		√							
Mary Roe							√		

> On the left hand side will be listed the names of all girls in the house. Start at the top and rate each girl in turn, including yourself. In rating each girl, ask yourself: "Is she punctual or late for appointments?" Think carefully of as many concrete incidents as possible; then make a check-mark somewhere on the line after the girl's name to indicate how punctual she is (See above illustration for Jane Doe.) The numbers from 1 to 9 at the top of the page show roughly the degrees of punctuality represented by points along each line, "9" signifying the highest degree, and "1" the least. The descriptions above the numbers further define their meanings. Try to locate each check-mark as accurately as possible, using the numbers and descriptions as general guides.
>
> "After completing the punctuality ratings, go on to each of the following pages in turn, and rate each girl on the traits there described."

The scales for the remaining traits were arranged similarly. Questions and descriptive statements with their approximate corresponding scale numbers were as follows:

Is she sociable and friendly, or does she tend to avoid people?

(9) Enjoys people; spends most of time with others
(6-7) Usually likes to be with people
(3-4) Often prefers to keep to herself
(1) Aloof; almost always prefers to be alone

Is she fair-minded or prejudiced in her judgments of people and issues

(9) Always impartial and fair-minded
(6-7) Tries to be fair; usually just
(3-4) Judgment often affected by strong feelings
(1) Partial and prejudiced; intolerant

Is she intellectually quick or slow as compared with other girls in the group?

(9) Always grasps the essentials immediately
(6-7) Usually catches on quickly
(3-4) Often slow in getting the point
(1) Always slow in understanding

Is she self-confident or does she doubt her own ability to handle situations ?

(9) Self-assured in all situations
(6-7) Usually has confidence in herself
(3-4) Often needs reassurance from others
(1) Always doubtful of own adequacy.

Does she display a sense of humor?

(9) Sees the funny side of everything
(6-7) Usually sees the amusing side of things
(3-4) Often needs jokes explained to her
(1) Takes everything literally

In the analysis of results, each rating was given the numerical value of the column in which it fell. In order to eliminate the effects of rater differences in central tendency and variability of ratings, these "raw ratings" were converted to "standard ratings". This involved determining the mean and standard deviation of the ratings given by each subject on each trait (excluding her self-rating), and the deviation of each rating from the mean in terms of standard deviation units. Each standard score thus derived was converted to a score on an arbitrary scale ("T-scale") with a mean of 50 and standard deviation of 10. Thus, if a rater gave another subject a raw rating of 6, and if all of the ratings which she gave on this trait averaged 7.50 with a standard deviation of 1.50, the rating of 6 would be converted to a standard rating of 40. It could then be compared directly with any standard rating given by any rater on any trait. In order to facilitate comparison of any rating given with the mean rating received by the rater from the group as a whole, a "standard mean rating" was computed for each subject on each trait. Raw ratings received by each subject were averaged, the characteristics of the distribution of means for all subjects on the trait determined, and each mean then converted to a value on a T-scale. A sub-

ject receiving a standard mean rating of 50, then, would be considered average by the group, and so on.

Sociometric data

After completing the ratings, the subjects filled out a form on which they were asked the following questions:

> "If you were to choose a room-mate at the present time, what three girls now living in the house would you consider *first?*"
> "Under the same conditions, what three girls now living in the house would you consider *last?*"

Although order of first and last choices was obtained, it was not considered in analyzing the data. The first three choices in each case were treated equally as "choices", and the last three as "rejections".

The sociogram showed that 25 of the girls formed a relatively well-integrated group, or series of sub-groups, while the remaining 9 were relatively isolated. Each of the girls in the "majority group" had at least one mutual choice within the group, and but one girl made a choice (unilateral) outside of it. Of the total of 75 rejections made by the 25 girls, only 12 went to other girls within the group. In the "minority" or "isolate" group, three of the girls were held together in a chain of mutual choices, and three others received one choice apiece, but with these exceptions all appeared to be so isolated from the majority structure and from each other as to warrant considering them an isolate group.

In order to analyze the relationships between ratings and sociometric status, the subjects were divided into three "status groups", as follows: (I) members of the majority group receiving no rejections; (II) members of the majority group receiving rejections; and (III) members of the minority or isolate group.[3] Tables 1 and 2 show the sociometric characteristics of the three groups.

Statistical analyses

The data obtained were subjected to analyses of variance to test the significance of differences between status groups with respect to various

[3] A continuous measure such as that developed by Bronfenbrenner did not appear desirable because it weights each choice equally and does not allow a measure based on consideration of choices, mutual choices and rejections in combination. Cf. Bronfenbrenner, U. The measurement of sociometric status, structure and development. *Sociometry Monographs,* 1945, No. 6. Without taking into account all of these factors, it does not seem possible to describe status differences as sensitively as perusal of the sociogram would suggest is necessary. The result may be, of course, that we are dealing here with more than a single status continuum.

TABLE 1
CHOICES, MUTUAL CHOICES AND REJECTIONS RECEIVED BY MEMBERS OF STATUS GROUPS

Group I (N = 15)															
Subject	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
Times Chosen	2	2	2	4	4	3	4	6	8	7	6	4	4	6	2
Mutual Choices	1	1	2	2	3	2	1	2	3	1	2	1	2	3	1
Times Rejected	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Group II (N — 10)										
Subject	A	B	C	D	E	F	G	H	J	K
Times Chosen	2	4	1	3	4	3	2	3	3	5
Mutual Choices	2	2	1	2	1	3	1	2	1	2
Times Rejected	2	3	3	1	2	1	6	5	1	1

Group III (N — 9)									
Subject	A	B	C	D	E	F	G	H	J
Times Chosen	2	2	1	0	1	1	0	0	1
Mutual Choices	2	1	0	0	1	0	0	0	0
Times Rejected	10	13	6	4	11	2	21	5	5

TABLE 2
NUMBERS OF CHOICES AND REJECTIONS WITHIN AND BETWEEN THE STATUS GROUPS

		Group Making Choices			Group Making Rejections		
		I	II	III	I	II	III
Group	I	26	25	13	—	—	—
Receiving Choices	II	19	4	7	6	6	13
and Rejections	III	—	1	7	39	24	14
Total		45	30	27	45	30	27

aspects of the ratings. In each case the analysis involves a single classification, status-group, with one measure for each member of each group,—mean rating given, mean rating received, or whatever the case may be. With a total of 34 measures, there are 33 degrees of freedom, 2 for "between groups" and 31 for "within groups" or error.

RESULTS

Ratings received from all other individuals

To what extent is the group judgment of an individual on particular traits related to sociometric status? Table 3 shows the means of the standard mean ratings received by members of the several status groups on each trait, together with the *F*'s obtained in the analyses of variance. Statistically significant values of *F* are noted for sociability, fairmindedness and sense of humor. Evaluation of the mean differences between each pair of groups by

TABLE 3
STATUS GROUP MEANS FOR STANDARD MEAN RATINGS RECEIVED BY INDIVIDUAL MEMBERS OF THE GROUPS

	Punctuality	Sociability	Fair-mindedness	Intelligence	Confidence	Humor
Group I	52.33	55.46	57.00	52.93	51.00	55.80
Group II	52.20	43.70	43.30	50.80	49.20	45.80
Group III	43.33	48.22	45.22	44.00	48.66	45.22
F	2.76	5.13*	11.19**	2.42	0.17	5.47**

*Significant at 5% level
**Significant at 1% level

means of the *t* test reveals that Group I is significantly superior to Group II in all three traits and to Group III in all but sociability, and that Group II and III do not differ significantly in any. In the three traits showing no significant *F*'s, Group I tends likewise to have the highest standing.

Is the dispersion of ratings received by an individual a function of his sociometric status? In Table 4 it will be observed that mean variability is consistently least for Group I, and greatest for Group III, and that significant values of *F* are obtained for the same traits noted above, sociability, fairmindedness and humor. Application of the *t* test to group differences in these traits shows Group I significantly less variable than Group III in all three traits, and less variable than Group II in sociability and fairmindedness. Between Groups II and III there are no significant differences. Apparently, then, individuals having the most favorable positions in the sociometric structure receive the highest ratings in certain characteristics, and the group as a whole shows greatest agreement in its ratings of these individuals.

Ratings of own and other status groups

The question arises next as to whether the different status groups tend to agree in their ratings of their own and other groups. Or, to put it in a different way, is the sociometric status of the rater a factor in ratings which

TABLE 4
STATUS GROUP MEANS FOR STANDARD DEVIATIONS OF STANDARD RATINGS RECEIVED BY INDIVIDUAL MEMBERS OF THE GROUPS

	Punctuality	Sociability	Fair-mindedness	Intelligence	Confidence	Humor
Group I	6.38	6.12	6.71	7.29	7.09	7.17
Group II	6.82	8.36	8.47	8.05	7.73	8.51
Group III	7.59	8.41	8.82	8.58	8.04	9.23
F	1.95	6.87**	9.20**	1.96	1.22	3.42*

*Significant at 5% level
**Significant at 1% level

she assigns to individuals of a given status? To gain some information on this point we computed for each individual the mean of standard ratings which she gave to members of a particular status group on each trait. (Self-ratings were excluded.) The mean ratings assigned to a given group by individual members of the three groups were then subjected to analysis of variance separately for each trait. Table 5 shows the *F* values found in

TABLE 5
STATUS GROUP MEANS FOR MEAN STANDARD RATINGS GIVEN BY MEMBERS TO EACH STATUS GROUP
(self-ratings excluded)

Ratings Given to	by	P	S	F	I	C	H
Group I	Group I	52.13	53.84	54.55	52.03	51.43	53.63
	Group II	51.23	53.40	54.29	52.45	50.74	53.58
	Group III	51.23	53.61	54.63	51.50	50.96	51.79
	F	1.13	0.39	0.28	1.17	0.38	3.52*
Group II	Group I	52.12	46.25	46.87	51.24	49.47	47.89
	Group II	51.31	45.07	45.95	48.73	49.33	47.79
	Group III	50.78	45.72	44.01	50.31	49.06	46.26
	F	0.86	1.21	4.27*	3.66*	0.06	1.30
Group III	Group I	44.69	48.48	46.45	45.49	48.75	46.29
	Group II	46.16	49.22	46.48	47.43	49.28	46.25
	Group III	46.40	48.57	48.77	46.90	48.89	51.26
	F	1.37	0.27	3.22	2.15	0.12	10.24**

*Significant at 5% level
**Significant at 1% level

these analyses, together with the group means of the mean ratings given by members of each group. To illustrate reading of the table,—the mean of mean standard ratings in sociability given by individuals in Group II to Group I is 53.40. In most cases considerable agreement may be noted among the groups in their ratings of a given group. Statistically significant exceptions are found in several instances, however, notably in the case of humor, where Group III rates itself higher and Groups I and II lower than do these latter groups. In the case of fairmindedness, ratings of Group II differ significantly, and differences in ratings of Group III approach significance, largely because Group III rates itself higher and Group II lower than do Groups I and II. Again, there is a significant difference of opinion concerning the intelligence of Group II, with individuals in Group II rating other members of that group lower than do the other groups. In some cases, then, the status relationships between rater and individual rated appear to have influence on ratings.

Self-ratings

How is sociometric status related to judgments of one's self? In Table 6, showing status group means for standard self-ratings and the *F*'s obtained in the analyses of variance, there appears to be no relationship; members of the various groups seem on the average to think about equally well of themselves, and in some cases this is quite well indeed.

But self-judgment cannot, perhaps, be considered adequately by itself without reference to group judgment of the individual. To evaluate the agreement between the two, the difference between standard self-rating and standard mean rating received in each trait was computed for each individual. The means of these differences for the status groups are given in Table 7, together with values of *F* indicating that the groups differ significantly in degree of conservativeness in self-ratings of all traits but self-confidence. Application of the *t*-test to mean differences in these five traits shows that Group I is significantly more conservative than Group II in self-ratings of all traits but punctuality and intelligence, and more conservative than Group III in all traits but sociability. Between Groups II and III the differences are not significant.

Recalling that members of Group I generally receive the highest ratings from the entire group, one might ask if this finding with respect to self-

TABLE 6
STATUS GROUP MEANS FOR STANDARD SELF-RATINGS BY INDIVIDUAL MEMBERS OF THE GROUP

	Punctuality	Sociability	Fair-mindedness	Intelligence	Confidence	Humor
Group I	46.93	54.13	52.27	50.73	44.60	54.53
Group II	47.56	51.60	50.70	54.90	48.70	55.90
Group III	46.89	50.44	54.00	52.33	44.33	52.11
F	0.01	0.68	0.48	1.08	0.54	0.61

TABLE 7
STATUS GROUP MEANS FOR DIFFERENCES BETWEEN STANDARD SELF-RATINGS AND STANDARD MEAN RATINGS RECEIVED BY INDIVIDUAL MEMBERS OF THE GROUP

	Punctuality	Sociability	Fair-mindedness	Intelligence	Confidence	Humor
Group I	—5.40†	—1.33	—4.73	—2.20	—6.40	—1.27
Group II	—4.00	7.90	7.40	4.10	—0.50	10.10
Group III	3.56	2.22	8.78	8.33	—4.33	6.89
F	3.70*	3.75*	6.92**	4.38*	1.35	7.11**

†Negative difference indicates self-rating lower than mean rating received
*Significant at 5% level
**Significant at 1% level

ratings is any more than a reflection of the oft-demonstrated fact that individuals standing high on a trait tend to under-rate themselves, whereas those standing low tend to over-rate themselves.[4] Is sociometric status necessarily involved at all here? In order to obtain some evidence on this point, the self-ratings in each trait were subjected to analysis of covariance, in which the self-ratings in the three groups were adjusted for group differences in mean rating received, the adjustment being based on the average regression of self-rating on mean rating within the groups. Table 8 shows

TABLE 8

STATUS GROUP MEANS FOR STANDARD SELF RATINGS, ADJUSTED FOR GROUP DIFFERENCES IN MEAN RATINGS RECEIVED; AND OTHER DATA OBTAINED IN ANALYSIS OF COVARIANCE

	Punctuality	Sociability	Fair-mindedness	Intelligence	Confidence	Humor
Group I	44.48	51.55	51.38	49.70	43.86	51.57
Group II	45.82	54.67	51.52	54.61	49.21	58.10
Group III	52.74	51.34	54.58	54.37	45.22	54.61
F	2.62	0.68	0.55	2.36	1.31	3.80*
r	0.75	0.56	0.13	0.48	0.67	0.61
b	0.9226	0.4810	0.1246	0.3429	0.6944	0.5162

*Significant at 5% level

the adjusted mean values, the average regression coefficients (*b's*), average correlations within groups (*r's*), and the values of *F* obtained in analysis of variance of the adjusted values. The adjusted mean values can be regarded as what the mean self-ratings would most probably be if there were no group differences in mean ratings received. Comparison of these values with the unadjusted means in Table 6 shows some changes in ranking; on every trait either Group II or Group III is now highest in self-rating. Higher *F*'s are also noted in Table 8, especially for punctuality, intelligence, and humor, the last being significant at the 5% level of confidence. Evidently, then, with respect to at least one of the traits, low sociometric status may involve some factor or factors other than standing on the trait which makes for higher self-ratings.

DISCUSSION

In considering these findings, it should be remembered that they have been obtained under quite specific conditions. One sorority group is probably not representative of all sororities, let alone of groups in general. Moreover, only one sociometric criterion was employed, choice of roommate, and

[4] For a summary of this literature, see, for example, Guilford, J. P., *Psychometric Methods.* New York: McGraw-Hill, 1936.

although this seems to be the most important one for this type of group, other criteria might yield somewhat different results. Also, the criterion was "unrealistic" in the sense that no actual changing of roommates was contemplated; there is, however, no evidence to indicate that this fact made any difference.

Common sense would predict that high-status individuals would be rated high on certain traits by the whole group, for the traits in question, sociability, fairmindedness, and sense of humor—undoubtedly have high social value in a group of this sort. However, as with any finding of a relationship between measures of personality characteristics and social effectiveness, the interpretation is far from clear. Do individuals attain high status because they manifest these traits? Or do they develop these traits in consequence of having attained high status? Or are they merely thought by raters to stand high in these respects because they have high status or are admired as individuals? Or does high status permit the conspicuous display of these traits without there necessarily being any fundamental personality differences?

Probably all of these interpretations apply in some degree. The data permit no decision, although with respect to certain traits some evidence pointing toward the last-mentioned possibility appears in the cases of disagreement among status groups. Thus members of Group III rate other members of that group considerably higher in humor, and members of Group I somewhat lower, than do the members of Groups I and II. What accounts for these discrepancies? Do low status individuals have both less humor and lower standards of humor so that they rate each other relatively high? But if so, why do they agree with the other groups as closely as they do in their ratings of Group I and II? One suspects, in accord with everyday observation, that the low-status individual may display a perfectly adequate sense of humor among his peers, but in the presence of high-status individuals feel constrained to banalities. Longitudinal studies of the relation between sociometric position and personal judgments in a group of this sort would throw more light on this and other possible factors. In any case, the present data suggest that the social structure of a group must be considered in evaluating its judgments of particular individuals.

To account for the tendency of individuals rated low by the group to rate themselves higher, it is usually assumed that they are aware of their failings, and attempt to mask these defensively in the case of socially important traits by inflating their self-ratings. We need not inquire here whether these deficiencies involve fixed personal characteristics or just a mat-

ter of group opinion; it is enough to note that on most of the traits there is some relationship between group opinion and self-ratings, as indicated by the correlations in Table 8, which would suggest that the individual in rating himself is affected by group opinion (or something related to it). But the question may be raised as to whether this tendency to self-inflation derives fundamentally from the individual's awareness of low standing on a particular trait, or from the more general complex of factors comprising his sociometric status, since in general low status is associated with low standing on important traits. The analysis of covariance of self-ratings is aimed at this question. If when the effects of status group differences in mean ratings received are eliminated, there remain significant group differences in self-ratings, then some factor associated with sociometric status, other than general opinion of the individual on that trait, must be implicated. The results indicated that while apparently this does not hold true of some traits, there is a good possibility that it does in regard to humor, and perhaps also punctuality and intelligence. Although not conclusive, the data warrant the hypothesis that low sociometric status involves generalized feelings of insecurity which predispose to inflation of certain types of self-ratings. It is easily conceivable, futhermore, than even in the case of other traits, where self-inflation may occur regardless of sociometric status, the motivation may come from perceiving low standing as a threat to status, rather than from merely wanting to be as good as possible, or something of that sort, but this is a more difficult matter to test. Finally, it goes without saying that personality differences of various sorts may complicate self-rating tendencies in individual cases.

Summary

An exploratory investigation of the relationships between sociometric status of members of a college sorority and their ratings of themselves and other members on certain personality traits indicates: (1) that individuals of high status are rated high by the group on traits which are presumably most valued socially; (2) that the sociometric status of the rater is in some cases a significant factor in his ratings of other individuals; and (3) that sociometric status, although not directly related to self-ratings, is found to be a factor in some self-ratings when the effects of differences in ratings received from the group are eliminated statistically. The findings suggest that an understanding of the judgments which an individual makes of himself or which others make of him must take into account the social structure of the group concerned. Further research is needed to isolate the factors underlying these relationships.

THE RELATIONSHIP BETWEEN SELECTION-REJECTION AND INTELLIGENCE, SOCIAL STATUS, AND PERSONALITY AMONGST SIXTH GRADE CHILDREN[1]

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I. INTRODUCTION

The consistently insignificant relationship reported by investigators between intelligence and selection-rejection among children is a puzzling phenomenon which seems to contradict common sense observation.

In 1943 Helen Hall Jennings published the results of a detailed sociometric analysis of the personality of over 400 girls in the New York Training School for girls. She found intelligence not to be a significant factor in accounting for selection and rejection among the citizens of this community.[2] This finding corroborated the results of an earlier study by Charles E. Howell obtained at the college level.[3]

Is there truly no relationship between intelligence and selection-rejection, or have we been hypothecating a kind of relationship which does not exist and overlooking one which does exist? We have been testing the presence of a rectilinear relationship and have been finding that none such exists. But perhaps the relationship takes some other form. The present study attempts to explore this problem.

Lundberg and Steele, in a sociometric study of a rural village, have reported that among adults social status is related to choice, that is, those with high social status are designated as friends more frequently than others.[4] The question then arises: at what point in the development of personality does this status factor begin to operate in the designation of friends? When the differences are as great as sex differences are, they begin to operate at the eighth grade level.[5] Race differences show up even earlier, in kindergarten, in fact.[6] Do status differences also begin to operate at an early level? This was a second problem explored in the present study.

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[1] This study was made under the direction of Dr. Jessie Bernard.

[2] *Leadership and Isolation: A Study of Personality in Inter-Personal Relations*, New York: Longmans, Green, and Co., 1943, pp. 132, 133, 142.

[3] "Measurement of Leadership," SOCIOMETRY, V:163-168, May 1942.

[4] G. A. Lundberg and Mary Steele, "Social Attraction-Patterns in a Village," SOCIOMETRY, I:375-410 (Jan.-April, 1938).

[5] J. L. Moreno, *Who Shall Survive?* (1934), p. 61.

[6] H. H. Jennings, *ibid*, pp. 374-400; Joan Henning Criswell, "A Sociometric Study of Race Cleavage in the Classroom," *Archives of Psychology;* No. 233, 1939 p. 16.

In a recent paper Raymond Sletto suggests that sociometric studies might well use more standard measuring instruments in exploring interpersonal relations.[7] M. E. Bonney has recently presented a noteworthy project in this direction.[8] In an intensive five year study of 150 school children to determine the personality traits associated with popularity and unpopularity, he found general health and vigor, conformity, poise, initiative, adaptability, dependability, affection, consideration for others, and originality to be associated with the popular child. The present study also contributes to this problem.

II. Procedure: Instrument and Sample

The study was made in a community in which a large state-supported college is located; therefore the majority of those tested come from professional families. Along with this upper socio-economic group there are also children from nearby rural areas whose parents are farmers or laborers. Interspersed within this group is a small proportion of children whose parents are local businessmen. One class in particular was very homogenous in social background, 21 of the 24 members coming from professional homes.

A near-sociometric instrument consisting of 10 questions was administered to determine the selection-rejection status of 117 sixth grade children divided into 4 classes in a small city. It is designated as a near-sociometric[9] instrument because it was hypothetical in nature, that is, no changes in the child's seating or other school arrangements were promised on the basis of the results. The questionnaire consisted of the following questions and directions:

To the boys and girls:

This is a plan to see how well you are working and playing together. Will you please help us by answering each question? You will write the name of three children in your class after each question.

1. Which children in your class do you like to sit near?
2. Which children in your class would you like not to sit near you?
3. With which children in your class do you prefer to walk home after school?
4. With which children in your class do you prefer not to walk home after school?
5. With which children in your class do you prefer to play?
6. With which children in your class do you prefer not to play?

[7] "Next Steps in Social Measurement," Sociometry, 10:354-361 (Nov. 1947).

[8] Popular and Unpopular Children (New York: Beacon House, 1947).

[9] H. H. Jennings, *Leadership and Isolation*, pp. 13, 14, 15, 16.

7. Which child in your class would you select for class officer?
8. Which child in your class would you not want for class officer?
9. Which child in your class is your best friend?
10. Which child in your class do you like least?

The instrument, using the Spearman-Brown split half formula, yielded reliability coefficients of .93, .96, .96 and .97 for the four classes respectively. Evidence of its validity was obtained by determining the number of children "voted for" on this instrument who had actually served as class officers during the school year. It was found that all of the five who had been "voted for" on the instrument in each class had also been selected as class officers.

Each first choice was given three points, each second choice, two points, and each third choice, one point. The difference between the sums of the selection and rejection scores served as an individual score for each child. The classes were analyzed separately and then standard scores were obtained in order to make a composite analysis.

Data were secured from school records on: fathers' occupation (as a measure of social status); intelligence as measured by the Stanford-Binet (form L); reading achievement, according to scores on the Stanford Achievement Test; and the number of children in the family. The last named factor was disregarded in the present study, inasmuch as it yielded no significant results.

The California Personality Test was administered to the 20 children with the highest selection-rejection scores, and to the 19 children with the lowest scores.

Finally, an analysis of the results of the California Personality Test was made by using the method of internal consistency to determine which items most clearly differentiated the two groups in order to see wherein the personality of the selected and rejected children differed most significantly.

III. Results: intelligence

The usual low positive correlation was obtained between selection-rejection and intelligence on the assumption of a rectilinear relationship. However, when the sample was broken down into three categories—less than normal (60-84), normal and superior (85-129), very superior and near genius (130 and above)—a significant difference was found in the average selection-rejection score between those in the below-normal group and the normal-superior group.

TABLE 1

IQ	No.	Mean	σ	
B & D (60-84)	8	4.01±.13	.35	σ diff.=.99±.20
N & S (85-129)	66	5.00±.14	1.15	σ diff.=.37±.36
VS & NG (130+)	12	5.37±.33	1.09	

This illustrates an exponential rather than a rectilinear relationship between intelligence and selection-rejection. That is, intelligence did make a difference up to a certain point—normal intelligence—but thereafter it did not materially affect the selection-rejection score. Thus when the average selection-rejection score for the children with less than normal intelligence is compared with that of children with normal and superior intelligence, a difference of .99 with a standard error of .20 is found. However when the selection-rejection score of the normal and superior children is compared with that of the very superior and near-genius children the difference (.37 ± .36) is not significant. It appears from these results that selection demands conformity to a minimum standard (in this case, normal intelligence), but once this standard is achieved increasing the amount of the required trait—in this case intelligence—does not increase the degree of selection. This exponential relationship explains why rectilinear correlations previously reported were uniformly low. This exponential relationship does not contradict the fact that by and large the children with highest selection-rejection scores had higher IQ's than those with lowest selection-rejection scores.

TABLE 2

	No.	Av. IQ	σ	
Top Selectees	21	123.8	12.9	σ diff.=15.7±5.82
Bottom Rejectees	16	108.1	19.6	

In connection with the intelligence findings it is interesting to note that reading as measured by the Stanford Achievement Test showed a similar exponential relationship to selection-rejection. That is, the children with low reading ability also had low selection-rejection scores. But once average

TABLE 3

Reading	No.	M	σ	
3-4	27	4.38	.97	σ diff.=.67±.22
5-7	59	5.05	.91	σ diff.=.27±.27
8-10	25	5.32	1.16	

reading ability was achieved, additional reading ability did not add to the selection-rejection scores. Again, the exponential relationship does not obscure the fact that the most selected children showed significantly higher reading achievement scores than did the most rejected children.

TABLE 4

	No.	Av. Reading	σ	
Top Selectees	20	7.00	1.18	σ diff.=1.61±.64
Bottom Rejectees	18	5.39	2.41	

SOCIAL STATUS

Barr Scale ratings were assigned to the occupations of the fathers of the children to determine whether or not there was any relationship between social status and selection-rejection scores at this age level. The results are shown in Table 5 and Table 6. It will be noted that children from homes rating less than 9 on the Barr Scale showed significantly lower selection-rejection scores than those from homes with Barr ratings of 9 or more. That is again, as in the case of intelligence, the relationship was found to be an

TABLE 5

Barr Scale	No.	Mean	σ	
Under 9	33	4.56±.16	.90	σ diff.=.61±.22
9-16	48	5.17±.15	1.03	σ diff.=.14±.25
17	35	5.03±.18	1.13	

exponential one. At this age level, social status does affect selection-rejection up to a certain point, but beyond that it is not important. Once middle class status is achieved—that is, the level of a skilled worker's family—additional status does not add to chances for selection at this age. The child from a less than skilled occupational background—for example, day laborer—or from a farm background, was handicapped so far as selection was concerned, in this community. On the other hand, coming from a professional background did not improve the child's chances for selection-rejection above that of the child from the skilled workers or business background. The minimum requirement seemed to be one of lower middle class status (Warner classification); more than lower middle class status did not help, but less than this level hindered. This exponential relationship is in keeping with the fact that the most selected children came from homes with significantly higher Barr ratings than did the most rejected children.

TABLE 6

	No.	Av. Barr	σ	
Top Selectees	20	14.50	3.82	σ diff.=3.42±1.18
Bottom Rejectees	19	11.08	5.42	

PERSONALITY

The California Personality Test was administered to the 20 children with the highest selection-rejection scores and to the 19 with the lowest scores. The average total adjustment score of the former group was 76.50 and of the latter group, 49.90, showing a clearly significant difference of 26.60 ± 6.23. When the method of internal consistency was applied to

TABLE 7

	No.	Av. S-R Score	σ	Av. CPT	σ
Top Selectees	20	6.28	.63	76.50	14.80
Bottom Rejectees	19	3.51	.10	49.90	22.40
		σ diff.= 2.77± .14		σ diff.=26.60±6.23	

this test, 35 items were selected which most clearly differentiated the selected and rejected children. The criterion of selection was that the items had to be answered wrong at least three times more often in one group than in the other. When these items were used as a separate test the average score of the selected group was 33.55 and that of the rejected group was 24.62,

TABLE 8

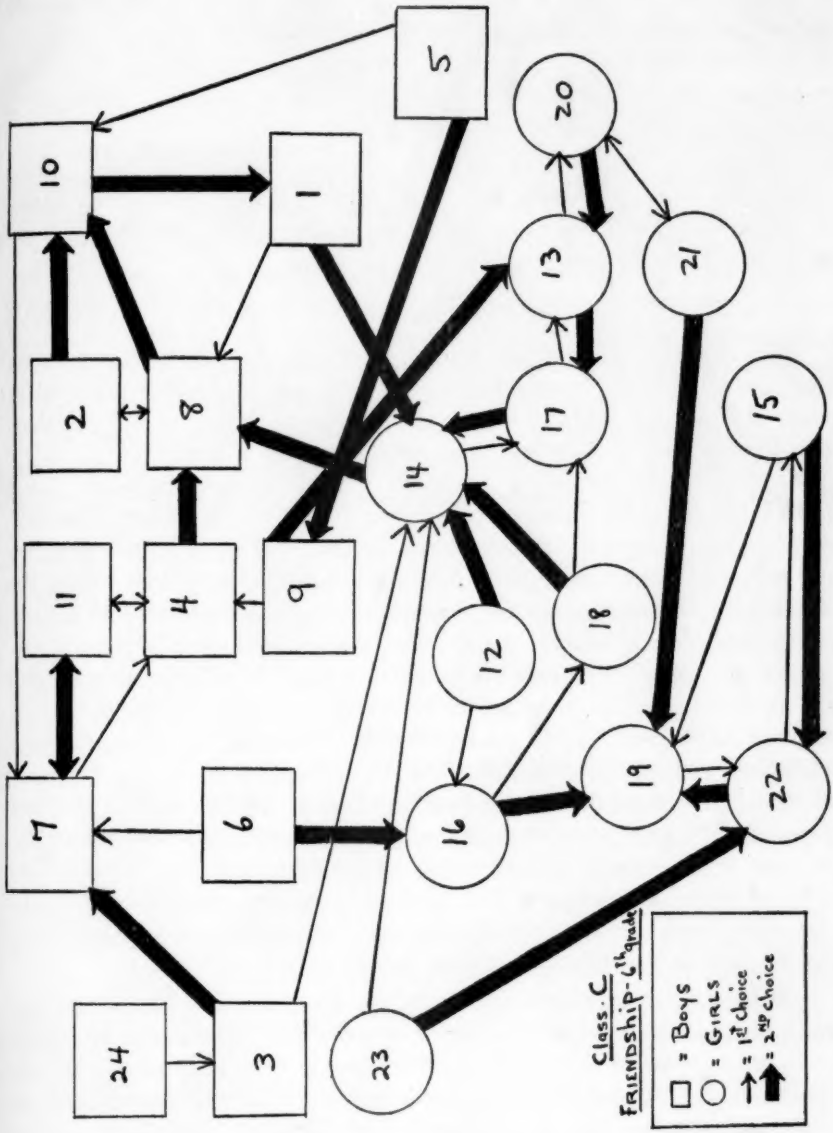
	No.	Av. S-R Score	Av. X Factor	σ
Bottom Rejectees	19	3.51	24.62	5.40
Top Selectees	20	6.28	33.55	1.96
			σ diff.=8.93±1.35	

showing a significant difference of 8.53, ± 1.35. The following list shows the general nature of the 35 questions which were answered wrong by the children with low selection scores at least three times more frequently than by those with high scores:

1. Is it easy for you to recite or talk in class?
2. Do your parents or teachers usually need to tell you to do your work?
3. Do your friends generally think that your ideas are good?
4. Are your friends and classmates usually interested in the things you do?

5. Do your friends and classmates often want to help you?
6. Do your folks seem to think that you are doing well?
7. May you usually choose your own friends?
8. Are you punished for lots of little things?
9. Do you feel that your folks boss you too much?
10. Do pets and animals make friends with you easily?
11. Do your classmates think you cannot do well in school?
12. Are you as well and strong as most boys and girls?
13. Do you have just a few friends?
14. Are you sorry you live in the place you do?
15. Do your friends have better times at home than you do?
16. Are people often mean or unfair to you?
17. Do you often have sneezing spells?
18. Do you often have bad dreams?
19. Do you take cold easily?
20. Do you often feel tired in the forenoon?
21. Do you often feel sick at your stomach?
22. Do you often tap with your fingers on a table or desk?
23. Do you often have dizzy spells?
24. Do your eyes hurt you often?
25. Should only the older boys and girls be nice and friendly to new people?
26. If a person finds something, does he have a right to keep it or sell it?
27. Is it all right to make fun of boys and girls who do not believe what you do?
28. Do you usually forget the names of people you meet?
29. Do you often make friends or classmates do things they don't want to?
30. Is someone at home so mean that you often have to quarrel?
31. Do classmates often quarrel with you?
32. Do you feel that no one at home loves you?
33. Do many of the other boys or girls claim that they play games fairer than you do?
34. Do you ever help clean up things near your home?
35. Do you take good care of your own pets or help with other people's pets?

It is interesting to note that questions dealing with nervous symptoms differentiated the groups most frequently, 8 out of 12 in this section of the California Personality Test being significant in this connection. Next most important were those dealing with a feeling of belonging, half of the 12 questions in this section of the California Personality Test showing clear cut differences between the selected and the rejected children. These findings tend to corroborate those of Bonney referred to above, and also those of Jennings, who found that the universal characteristic of leaders in her study


Class. C
Friendship - 6th grade
□ = Boys
○ = Girls
→ = 1st choice
⬆ = 2nd choice

may have been a "logical carrying out of their larger insight into the needs of persons generally and at least partially a reflection of greater emotional maturity on their part than appears to characterize the average member." The children who are rejected are, by and large, more susceptible to nervous symptoms than the selected children. Their lack of feeling of belonging is a true reflection of their status in the group.

In general, those of the children with the highest selection-rejection scores were more intelligent, had better reading ability, came from homes of higher status, and had more normal personality adjustment than did the children with the lowest selection-rejection scores.

Summary

The purpose of the study was to determine the relationship between selection-rejection and intelligence, social status, and personality among sixth grade children. A near-sociometric instrument consisting of 10 questions was administered to determine the selection-rejection status of 117 sixth grade children divided into 4 classes in a small urban community. Each first choice was given three points, each second choice, two points, and each third choice, one point. The difference between the sums of the selection and rejection scores served as an individual score for each child. After the classes were analyzed separately standard scores were obtained and a composite analysis was made. Data were secured from school records on: fathers' occupation (as a measure of social status); intelligence as measured by the Stanford-Binet; reading achievement, according to scores on the Stanford Achievement Test. An exponential relationship was found between intelligence and selection-rejection. That is, intelligence did make a difference up to a certain point—normal intelligence—but beyond that it did not materially affect the selection-rejection score. A similar exponential relation ship was found between reading ability and selection-rejection. That is, the children with low reading ability also had low selection-rejection scores. But once average reading ability was achieved, additional reading ability did not add to the selection-rejection scores.

Barr Scale ratings were applied to the occupations of the father, and again the relationship between selection-rejection and social status was found to be an exponential one. Children from homes with Barr ratings of less than 9 showed significantly lower selection-rejection scores than those from homes with Barr ratings of 9 or more. The minimum requirement seemed to be one of lower middle class status (Warner classification); more than lower middle class status did not help, but less than this hindered.

The California Personality Test was administered to the 20 children with the highest selection-rejection scores and to the 19 with the lowest scores. There was a clearly significant difference between the average total adjustment scores of the two groups; the selectees showed an average score which was 26.60 ± 6.23 points higher than the rejectees.

By using the method of internal consistency on the California Personality tests, 35 items were selected which most clearly differentiated the two groups. When these questions were used as a separate test there was a significant difference between the average scores of the selected and the rejected groups. The former group had an average score which was 8.93 ± 1.35 points higher than the latter. Questions dealing with nervous symptoms and feeling of belonging differentiated the two groups most frequently. The children who are rejected are, by and large more susceptible to nervous symptoms than the selected children. Their lack of feeling of belonging is a true reflection of their status in the group.

In general, those children with the highest selection-rejection scores were more intelligent, had better reading ability, came from homes of higher status, and had more normal personality adjustment than did the children with the lowest selection-rejection scores.

AN EDUCATIONAL APPLICATION OF A TWO-DIMENSIONAL SOCIOMETRIC TEST[1]

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The sociometric test represents an attempt to measure the direction and intensity of human relations. Any degree of success it achieves in this attempt will necessarily contribute to the concept of "amelioration through understanding" as expounded by George H. Mead and others. Society, and thus the individual, exists only in relationships; consequently, reasonably accurate quantitative statements concerning relationship contribute to an understanding of the individual and his behavior.

The sociometric test results are expressions of attitudes of the testees toward their associates with respect to a defined situation. Mead considers attitudes to be "the beginnings of acts"; therefore, the sociometric test explores the very beginnings of the behavioral pattern, "the social act." The value of the technique lies in the utilization of these expressions of attitudes as criteria for adjustment, relief of tension, and avoidance of further interpersonal tension or conflict.

Many variations of the basic sociometric test of J. L. Moreno have been used in the study of different aspects of behavior. This work is still pre-scientific. Therefore, an overall high level validity and reliability have not as yet been attained. Significant behavioral indices have been obtained in several research studies, however, and they have been effectually used to improve relationship situations.

The empirical evidence that has been and is being gathered by these studies will determine the validity and reliability of the sociometric technique. If a significant improvement of relationships, and consequently a societally approved modification of behavior, can be attained by utilization of the technique, then it can be a valuable educational instrument.

a. UTILIZATION OF A SOCIOMETRIC TEST IN A NINTH GRADE CLASSROOM

The sociometric test was adapted to use in a ninth grade classroom in an attempt to better understand its relationship structure. This test was designed to explore and partially explain the relationship patterns existing in the classroom group. It not only represents an attempt to discover *what*

[1] Adapted from McKinney, John C., *Educational Application of the Social Psychology of Mead,* Unpublished Master of Arts Thesis, Colorado State College of Education, Greeley, Colorado, 1947.

relationship patterns were present, but to a limited extent *why* they were present. The students of the class were asked to express their attitude toward serving in a discussion group with the other members of the class. (See the Test Instruction Sheet and the Group Test Sheet)

Three behavioral indices were obtained from the test: social status, compatibility, and sociality. These are all aspects of relationships, and, therefore, are important determiners of behavior. However, these indices merely indicate the structure or framework of the group, giving no clue as to why that structure exists.

In order to gain a general impression as to "why" this relationship framework exists, a second dimension was added to the test, and the students were asked to give their "reasons" for accepting or rejecting their fellow students in respect to specific criteria. This information can be of assistance to the teacher in that it may be used by him to help create a more favorable relationship pattern in the classroom. It also may possibly be used as a key to further diagnosis in a case of severe maladjustment.

The test given the ninth graders can be utilized by the teacher as a basis for guidance of future group work, but not for any long period of time because of the dynamic quality of human relations. Results should be frequently checked in order to secure current relationship patterns.

The test was interpreted by use of formulas to ascertain the individual behavioral indices. The Social Status Index was obtained by use of the formula: $SS = \frac{\Sigma I}{N - 1}$. The sum of intensities is the sum of acceptances accorded a group member plus the sum of rejections. This figure is divided by the number in the group minus one, (the individual being rated), and yields the Social Status Index. This index is the quantitative statement of how the group reacts to an individual in respect to the stated situation. The data for the attainment of the SS is contained in matrix form in Table I where every interpersonal relationship in class is symbolized according to responses. The table read horizontally indicates responses given. Read vertically, it indicates responses received.

Also in Table I are the figures of the "second dimension" of the test, the stated reasons explaining the social status. These figures are given as PA, standing for personal appraisal, and were obtained by getting the sum of positive (reasons for acceptance), and negative (reasons for rejections). It should be noted here that these reasons were stated in "general", "popular" terms that would be a familiar part of the ninth graders' vocabulary. Inasmuch as a person's thinking is a part of his language behavior, it is

TABLE I

Social Status and Personal Appraisal Matrix

Acceptance and Rejections Received	Acceptances and Rejections Given																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1:		†	O	O	–	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	†	–	†	†	†	†	–	†
2:	†		O	†	O	†	†	O	O	†	O	O	–	O	O	–	†	O	†	O	†	O	O	†	†	†	O	O	†
3:	†	†		†	O	O	†	O	O	†	O	†	O	†	O	–	†	O	†	O	†	O	O	†	†	†	O	O	†
4:	†	†	O		O	†	O	–	–	O	†	†	O	†	–	†	†	O	†	O	†	O	O	–	†	†	O	–	†
5:	†	O	O	†		†	O	–	–	O	†	†	†	†	O	†	†	O	†	†	†	O	–	O	O	†	†	O	†
6:	O	O	O	†	O		O	†	O	O	†	†	†	†	†	†	†	O	†	†	O	O	O	O	†	O	†	O	†
7:	†	†	O	O	O	†		O	O	†	†	O	O	O	–	†	†	O	†	†	O	†	O	O	†	†	†	O	†
8:	O	O	O	O	O	†	–		O	†	†	†	†	†	O	†	O	O	O	O	–	†	†	†	†	†	†	O	†
9:	†	†	O	O	–	O	–	†		O	–	†	–	†	†	O	†	–	†	–	†	O	–	–	–	†	†	–	†
10:	†	†	–	–	†	†	†	†	†		†	†	†	†	O	†	†	†	†	†	†	†	†	†	†	†	†	O	†
11:	†	†	O	–	O	†	†	–	–	O		†	O	†	†	†	†	†	O	–	–	O	–	–	†	†	–	O	†
12:	O	O	–	†	–	†	–	†	O	–	O		†	†	†	†	–	–	†	O	O	–	–	†	†	†	†	–	†
13:	†	†	O	†	†	†	–	†	–	†	†	†		†	†	†	–	†	O	†	O	†	O	†	†	†	†	†	†
14:	†	O	O	†	†	†	O	O	–	O	†	†	†		O	†	†	O	†	†	†	–	†	†	O	†	O	†	†
15:	O	†	O	O	†	†	O	†	†	O	†	†	†	†		†	O	†	†	†	O	O	O	†	†	†	–	O	†
16:	†	O	O	†	†	†	O	†	O	O	†	†	†	†	O		O	†	†	O	O	O	O	†	†	†	†	O	†
17:	O	†	–	†	O	†	†	O	O	O	†	O	–	O	O	O		†	O	O	†	–	–	†	†	†	O	–	†
18:	O	O	O	†	O	†	†	–	O	O	†	–	–	O	†	†	O		†	O	†	O	†	O	†	†	–	O	†
19:	†	O	–	–	O	†	–	–	–	–	O	O	O	†	O	†	O	†		†	–	O	†	O	–	–	–	–	†
20:	†	O	O	†	O	†	O	O	–	†	†	O	O	†	†	†	†	†	†		O	–	†	†	†	†	–	O	†
21:	†	†	†	†	O	†	†	O	O	†	O	O	O	O	O	†	†	†	†	O		O	O	†	†	†	O	O	†
22:	†	†	†	–	–	O	–	O	†	O	†	O	O	†	†	†	O	†	†	O	†		†	†	†	†	–	–	†
23:	O	O	O	O	O	†	†	†	O	†	O	O	O	†	O	†	†	O	†	†	O	O		O	O	†	O	O	†
24:	†	†	†	O	†	†	†	–	–	†	†	–	–	†	–	†	†	†	†	†	–	–	–		†	†	–	–	†
25:	†	†	O	O	–	O	O	–	–	†	–	†	–	†	O	†	†	–	O	†	O	O	O	†		†	–	O	†
26:	†	†	O	O	†	†	O	–	–	O	†	O	–	†	†	†	†	†	†	–	O	O	–	†	†		O	O	†
27:	O	†	†	†	†	†	†	†	–	†	O	†	†	†	O	†	O	†	†	O	O	O	†	†	†	†		O	†
28:	O	O	O	†	O	O	O	O	–	†	†	O	†	†	O	†	O	O	–	O	†	O	O	O	†	O	O		O
29:	†	O	O	O	–	†	O	†	–	O	O	†	†	†	O	†	O	†	†	†	O	–	†	†	O	†	†	†	
A:	19	16	0	10	2	23	3	3	-8	11	16	14	5	23	6	24	12	12	20	9	8	-8	1	25	20	24	-2	-2	10
SS:	.67	57	.00	.35	.07	.82	17	.10	-32	.39	.57	.50	.17	.82	.21	.85	.42	.42	.71	.32	.28	-.28	.03	.89	.71	.85	-.07	-.07	.35
PA:	81	87	40	40	18	119	53	24	-21	66	103	90	29	108	25	110	71	61	91	43	53	-1	28	122	101	114	19	23	68

A = Sum of acceptance plus sum of rejections.
SS = Social-status scores
PA = Sum of positive & negative reasons stated for acceptances and rejections.

† = †1.00 Acceptance
O = † .00 Indifference
– = –1.00 Rejection

Compatibility and Sociality Matrix

	Acceptances and Rejections Given																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1:																													
2:																													
3:																													
4:																													
5:																													
6:																													
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29:																													

A = Sum of acceptance plus sum of rejections.
SS = Social-status scores
PA = Sum of positive & negative reasons stated for acceptances and rejections.

† = †1.00 Acceptance
O = † .00 Indifference
– = –1.00 Rejection

COMPATIBILITY AND SOCIALITY MATRIX

Acceptances and Rejections Received	Acceptances and Rejections Given																											
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
1:		/				†	/	†	/	/	/	†	/	/	†	/	†	†	/	/	/	/		/	/	/	†		/
2:	/			/		†	/			/							/		†		/			/	/	/			
3:	†	†		†			†			†		†		†		†	†		†	†	/			/	†	†			†
4:	†	/				/					†	/		/		/	/		†		/			†	†				
5:	†			†		†					†	†	/	/		/		†	†	†						/	/		
6:				/				/			/	/	/	/	/	/		/	/					/		/	/		/
7:	/	/				†				/	/					†	/		†		/			/	†	†			
8:						/				/	†	/	/	†		/							/	†		†		†	/
9:	/	†						†				†		†	/			†	†					†	†	†			
10:	/	/				††	/	/	†		†	†	/	†		†	†	†	†	†	/	/	†	/	/	†	†		/	†
11:	/	†				/	/					†		/	/	/	/							/		/			
12:				/		/		/					/	/		/				†				†	/	†	/		/
13:	/	†		†		//		/		/	†	/		/	/	/			†		/		†	†	†		/	/	/
14:	/			/		//					/	/	/			/	†		/	/	†		/	/		/			/
15:		†				†/		†	/		/	†	/	†		†			/	†	/			†	†	/		†	†
16:	/			/		//		/			/	/	/	/					/	/				/	/	/	/		/
17:		/		/		†	/				/						†		†		/			/	/	/			
18:				†		/	†				†				/		/			†	/			/	†	/			
19:	/					/								/			/				/		/		/				/
20:	/			†		†				/	†			/	/	†	†	†	/				/	/	/	†			
21:	/	/	/	/		†	/			/						†	/	/	†					†	†				
22:	/	†	†						†		†			†	†		†	†	†			†	†	†	†				
23:						†	†	/		/				/		†			†	†						†			
24:	/	/	/			†/	/			/	/			/		/	/	/	/	†					/	/			
25:	/	/								/			/	†		/	/	/		/				/		/			
26:	/	/				//					/			/	/	/	/		/					/					/
27:		†	†	†		//	†	†		†		/	/	†		/			†	†			†	†	†	†	†		/
28:				†						/	†		/	†		†					†			†	†				
29:	/					/		/				/	/	/			/		†	†	/			†	†		/	/	†
M:	16	9	2	7	5	14	7	7	2	11	8	9	12	14	7	16	8	6	7	9	8	1	5	14	9	14	6	2	10
C:	.57	.32	.07	.25	.17	.50	.25	.25	.07	.39	.28	.32	.42	.50	.25	.57	.28	.21	.25	.32	.28	.03	.17	.50	.32	.50	.21	.07	.35
F:	23	11	16	12	13	14	12	12	11	24	12	12	20	16	18	16	11	11	7	16	13	15	9	16	10	14	19	9	15
S:	.82	.39	.57	.42	.46	.50	.42	.42	.39	.85	.42	.42	.71	.57	.64	.57	.39	.39	.25	.57	.46	.53	.32	.57	.39	.50	.47	.32	.53

/ = Indicates matrix of a mutually acceptable relationship.
† = Indicates acceptance by individual.
M = Sum of mutual acceptances that an individual participates in.

C = Compability Index
F = Sum of acceptances of others.
S = Sociality Index.

essential that the language of the descriptive "reasons" be geared to the testee's level of accomplishment insofar as possible.

Table II may be read the same way as Table I, and its matrix of relationships reveals two indices; Compatibility (C) and Sociality (S). The formula for obtaining the Compatibility Index is: $C = \frac{M}{N-1}$. M is the number of mutual or reciprocal acceptances, and $N-1$ is the number in the group less one. C indicates the number of compatible relationships in existence, and Table II illustrates which ones they are by showing them in parentheses.

The degree of Sociality (S), emotional expansiveness, or acceptance of others, is figured by taking the number of choices (acceptances) made by a person and dividing it by the number of possible choices. These acceptances are shown in Table II, and taken in totality for each individual indicate a general attitude toward the group.

b. Validity

The validity of the test is contributed to by a number of factors, first of which was the promise of consequences in terms of the test results. The group was assured that actual discussion groups would be formed on the basis of their stated preferences.

Another indication of test validity is the high rank-order correlation obtained between the Social Status Indices, and the Personal Appraisal Indices, (the reasons for assignment of status). On test number one, as shown in Table III, the correlation was .961; on test number two, as shown in Table IV, given one week later, the correlation was .981. This indicates a justification of stated relationships, and consequently considered in reverse, the SS tends to verify the PA. These findings are supported by those of Zeleny.[2]

c. Reliability

The reliability of the testing device was checked by giving a retest one week after the initial testing experience. The results were markedly similar in all aspects. Rank-order correlations between the initial indices and those obtained in the retest were as follows: Social Status, .941; Compatibility, .89; and Personal Appraisal, .969. The high correlations obtained between all indices of Tests One and Two indicate a practical degree of reliability of the testing device.

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[2] "Measurement of Sociation", *American Sociological Review*, Vol. VI (April, 1941), pp. 173-187.

TABLE III

THE RANK-DIFFERENCE COEFFICIENT OF CORRELATION BETWEEN THE SOCIAL STATUS INDEX AND STUDENT REASONS FOR ACCEPTANCES AND REJECTIONS TEST NUMBER ONE

Student	Variables: Social Status Index X	Variables: Personal Appraisal Index Y	Ranks: SS Rx	Ranks: PA Ry	Rx-Ry	$(Rx-Ry)^2$
1	.67	81	8	11	—3	9
2	.57	87	9.5	10	— .5	.25
3	.00	40	25	19.5	5.5	30.25
4	.35	40	15.5	19.5	—4	16
5	.07	18	23	27	—4	16
6	.82	119	4.5	2	1.5	2.25
7	.17	53	21	16.5	4.5	20.25
8	.10	24	22	24	—2	4
9	—.32	—21	29	29	0	0
10	.39	66	14	14	0	0
11	.57	103	9.5	6	3.5	12.25
12	.50	90	11	9	2	4
13	.17	29	20	21	—1	1
14	.82	108	4.5	5	— .5	.25
15	.21	25	19	23	—4	16
16	.85	110	2.5	4	—1.5	2.25
17	.42	71	12.5	12	.5	.25
18	.42	61	12.5	15	—2.5	6.25
19	.71	91	6.5	8	—1.5	2.25
20	.32	43	17	18	—1	1
21	.28	53	18	16.5	1.5	2.25
22	—.28	—1	28	28	0	0
23	.03	28	24	22	2	4
24	.89	122	1	1	0	0
25	.71	101	6.5	7	— .5	.25
26	.85	114	2.5	3	— .5	.25
27	—.07	19	26.5	26	.5	.25
28	—.07	23	26.5	25	1.5	2.25
29	.35	68	15.5	13	2.5	6.25

$$P = 1 - \frac{6\ E\ (RxRy)^2}{N\ (N^2 - 1)} = 1 - \frac{6\ (159)}{29\ (841 - 1)} = 1 - .039 = .961$$

d. UTILITY

If the test results are to be put to practical application in the classroom, it may be readily seen that a utilitarian form of assembling the data must be created. This form, or organization of data, should depict the results in such a fashion as to be of practical use to an instructor using the group method classroom procedure. In an attempt to devise such a form the writer has organized the pertinent data into an Individual Appraisal Sheet as shown in Figures 1 and 2. This is an organization of data relevant to each individual student.

TABLE IV

THE RANK-DIFFERENCE COEFFICIENT OF CORRELATION BETWEEN THE SOCIAL STATUS INDEX AND STUDENT REASONS FOR ACCEPTANCES AND REJECTIONS

TEST NUMBER TWO

Student	Variables: Social Status Index X	Variables: Personal Appraisal Index Y	Ranks: SS Rx	Ranks: PA Ry	Rx-Ry	(Rx-Ry)²
1	.67	88	7.5	10	—2.5	6.25
2	.67	92	7.5	8.5	—1	1
3	—.10	27	25	21	4	16
4	.35	53	15	16	—1	1
5	.07	14	21	24	—3	9
6	.85	114	2	1	1	1
7	.28	49	17	19	—2	4
8	—.03	6	23	26	—3	9
9	—.32	—21	29	29	0	0
10	.42	70	13	12.5	.5	.25
11	.64	98	10.5	7	3.5	12.25
12	.35	64	15	14	1	1
13	—.03	15	23	23	0	0
14	.85	108	2	4	—2	4
15	.10	29	20	20	0	0
16	.82	101	4	5	—1	1
17	.67	92	7.5	8.5	—1	1
18	.50	70	12	12.5	— .5	.25
19	.64	73	10.5	11	— .5	.25
20	.25	50	18	18	0	0
21	.35	61	15	15	0	0
22	—.25	—4	28	28	0	0
23	—.03	26	23	22	1	1
24	.85	113	2	2	0	0
25	.67	100	7.5	6	1.5	2.25
26	.78	110	5	3	2	4
27	—.17	4	27	27	0	0
28	—.14	7	26	25	1	1
29	.21	51	19	17	2	4

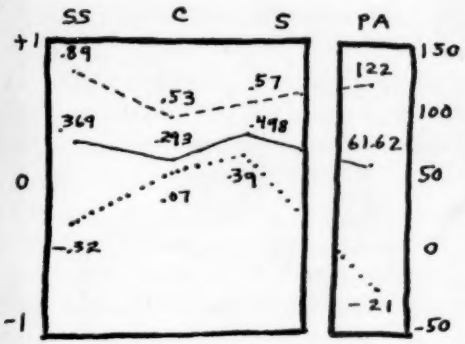
$$P = 1 - \frac{6\ E\ (Rx - Ry)^2}{N\ (N^2 - 1)} = 1 - \frac{6\ (79.50)}{29\ (841 - 1)} = 1 - .019 = .981$$

The Individual Appraisal Sheet is organized into three complementary components: the Sociodiagnostic Profile, the Social Atom, and the Group Appraisal of the Individual. The Sociodiagnostic Profile presents the behavioral indices of the individual in comparison to the group mean. The Social Atom[3] presents a graphic representation of the relationship pattern of the individual. The Group Appraisal of the Individual is a listing of all the reasons and their frequency given by the group for accepting or rejecting

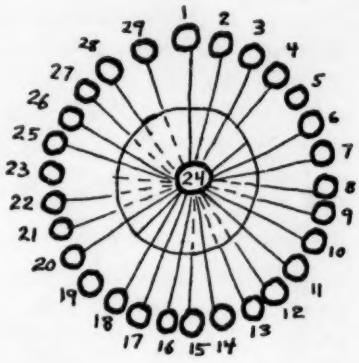
[3] The Social Atom as used here is an adaptation from the usage of Moreno, J. L., *Who Shall Survive,* and Zeleny, L. D., "Sociometry of Morale", *American Sociological Review,* Vol. IV (December, 1939), pp. 799-808.

FIGURE 1
INDIVIDUAL APPRAISAL SHEET
STUDENT #24

Sociodiagnostic Profile
Behavioral Indices



Social Atom
Relationship Pattern



GROUP APPRAISAL OF INDIVIDUAL

Reasons Given for Acceptance of Student #24	Frequency
Has a nice appearance	12
Is friendly	18
Is fair	12
Is quiet	2
Is talkative	3
Is always thinking of new things to do	5
Can take a joke	3
Is helpful in group planning	10
Is a good sport	4
Keeps his head	2
Argues well	1
Is good at games	1
Is polite	4
Is fun to be with	2
Is ready to do whatever the others want	4
Works hard in group activity	8
Is smart	8
Is dependable	13
Is a good discussion leader	7

Reasons Given for Rejection of Student #24	Frequency
Has a bad temper	2
Is a poor sport	1

Legend

Profile:

|-------| Student #24
|———————| Class Mean
|·····| Student #9

Social Atom:

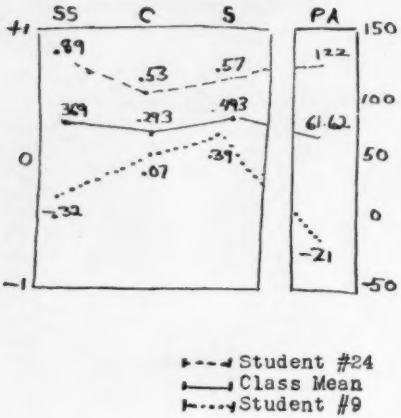
|———————| Like
|-------| Dislike
| | Indifferent

the individual. Each of these three components presents information that complements and contributes to the understanding of the other two.

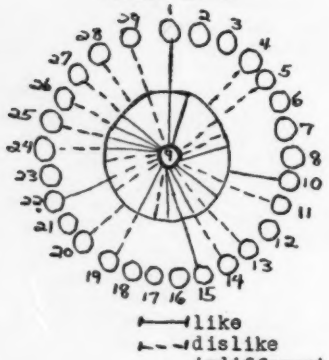
The instructor's use of the device can be illustrated by an analysis of the two contrasting Individual Appraisal Sheets of Student #24, Figure 1, and Student #9, Figure 2. The Sociodiagnostic Profile of Student #24 indi-

FIGURE 2
INDIVIDUAL APPRAISAL SHEET
STUDENT #9

Sociodiagnostic Profile



Social Atom



Group Appraisal of Individual

Reasons Given For Acceptance of Student #9:	Frequency
Has a nice appearance	1
Is friendly	7
Is fair	2
Is talkative	2
Can take a joke	2
Is helpful in group planning	2
Is a good sport	2
Is good at games	1
Is ready to do what others want	3
Is dependable	4
Is a good discussion leader	1
I feel sorry for him	1

Reasons Given for Rejection of Student #9:	Frequency
Has a poor appearance	2
Likes to loaf	1
Thinks he is too smart	10
Is unfriendly	2
Is stupid	2
Is a sissy	4
Is always complaining	3
Has a bad temper	1
Can't take a joke	3
Is a poor sport	5
Is a poor discussion leader	1
Is teacher's pet	2
Scared of everything	1
Always wants his own way	2
Is a showoff	7
Asks too many questions	1
Picks on people	1
Is fresh	1

cates that he has an SS of .89 in comparison to the group mean of .369, a C of .53 in comparison to the mean of .293, and a PA of 122 with the mean being 61.62. This indicates a high rate of acceptance by the group, a high degree of compatibility with the group, and better than average rate of acceptance of the group.

The Social Atom of Student #24 graphically indicates his relationship pattern within the group structure. It can be seen that he enjoys a mutual

acceptance with Students 1, 2, and 3, is indifferent to Student 4 who accepts him, enjoys a mutual acceptance with Students 6 and 7, rejects Students 9 and 10, but is accepted by them. Continuing around the atom, all of Student 24's relationships within the classroom may be seen. In the case of this student, a high degree of social adjustment and compatibility is evidenced.

The third component of the Sheet is the Group Appraisal of the Individual wherein the reasons for the existence of relationships are given. In this case, it can be seen that the reason "is friendly" has a frequency of 18. Eighteen students out of twenty-eight gave as at least one of their reasons for accepting Student #24 that fact that he was friendly. The reason "is helpful in group planning" has a frequency of 10, "is smart" has a frequency of 13, and "is dependable" has a frequency of 13. It may be seen that the most commonly given reasons for acceptance of Student #24 are: "has a nice appearance, is friendly, is fair, is helpful in group planning, works hard in group activities, is smart, and is dependable." This in effect puts "meat on the skeleton" of the Sociodiagnostic Profile and Social Atom by lending added meaning to them.

In contrast to Student #24 is Student #9, Figure 2, who has an SS of —.32 compared to a group mean of .369, a C of .07 in comparison to the mean of .293, an S of .39 as compared to a mean of .498, and a PA of —21, with the mean being 61.62. This indicates an extremely inferior social status in the group, a pattern of rejection by the group, virtually no compatible relationships, and a slightly less than average acceptance of the group.

The Social Atom of Student #9 indicates that he enjoys mutual acceptances only with Student 1 and 15, Student 10 accepts him, but he in turn is indifferent to Student 10, Student 22 accepts him, but he rejects Student 22, all other students in the class either reject or are indifferent to Student 9. This indicates a severe social maladjustment, and an almost complete rejection within the class group. The particular contribution of the test in this instance is the fact that it exposed a relationship pattern that *none* of the three instructors suspected. None of the instructors chose Student 9 in their selection of the most undesirable class associates.

In the Group Appraisal of the Individual it can be seen that there are relatively few reasons favoring an acceptance of Student 9, and that they have a generally low frequency. The only deviation from that is the frequency of 7 given to the reason is "is friendly." On the negative side "thinks he is too smart" has a frequency of 10, "is a poor sport" a frequency of 5, and "is a showoff" a frequency of 7. The student apparently has developed an aggressive form of behavior that prevents him from adjusting to the group.

It is readily apparent that additional information, diagnosis, and perhaps professional consultation is essential if this student is to be assisted in modifying and adjusting his behavior. The sociometric test results in this case give a pre-diagnostic point of departure for professional therapy.

The foregoing cases illustrate the insight that may be obtained into the relationship and behavioral patterns of group members by use of the sociometric test. Understanding of relationships is the key to understanding of behavior, and consequently is essential to a continuing refinement of the educational process.

INSTRUCTION SHEET

On the accompanying sheet is a list of the names of all the members of your class. For purposes of forming the best possible discussion groups on "Betterment of World Understanding", it is desirable for your teacher to know which class members you would like to work with on this activity. As nearly as possible, the discussion group you serve with will be made up of those classmates you choose. Your choices will be treated confidentially.

Please follow these instructions.

1. Cross out your own name by drawing a line through it.
2. After each name indicate how you feel about working in a "Betterment of World Understanding" discussion group with that person:
   a. Encircle ("Yes") if you would like to work with this person.
   b. Encircle ("No") if you do not want to work with this person.
   c. Encircle ("I") if you are indifferent about working with this person, and don't care whether you work with him or not.
3. After completing direction #1 and #2, turn your attention to the column of "reasons" at the right of the page. For each name that you have marked, pick out the statements from the column which most clearly represent the reasons for your choice. If your choice was "Yes", look in the column headed "Reasons for Answering 'Yes'"; if your choice was "No", look in the column headed "Reasons for Answering 'No'"; and if your choice was "Indifferent", look in both.
   Select the numbers of your important reasons for feeling as you do, and place the numbers on the lines at the right of the person's name.

EXAMPLE:

NAME	SERVE IN MY GROUP			REASONS
Jones	(Yes)	No	I	1 4 6 20 33

If you have a special reason for liking or disliking a person, you may write it in at the bottom of either the column headed "Reasons for Answering Yes", or the one headed "Reasons for Answering No". Place the number opposite the classmate's name.

If you feel that none of the listed reasons are applicable, and you can think of none that apply to a particular person, you may leave the line blank.

GROUP TEST SHEET

NAME	SERVE IN MY GROUP	REASONS
1.	Yes No	I _ _ _ _ _ _
2.	Yes No	I _ _ _ _ _ _
3.	Yes No	I _ _ _ _ _ _
4.	Yes No	I _ _ _ _ _ _
5.	Yes No	I _ _ _ _ _ _
6.	Yes No	I _ _ _ _ _ _
7.	Yes No	I _ _ _ _ _ _
8.	Yes No	I _ _ _ _ _ _
9.	Yes No	I _ _ _ _ _ _
10.	Yes No	I _ _ _ _ _ _
11.	Yes No	I _ _ _ _ _ _
12.	Yes No	I _ _ _ _ _ _
13.	Yes No	I _ _ _ _ _ _
14.	Yes No	I _ _ _ _ _ _
15.	Yes No	I _ _ _ _ _ _
16.	Yes No	I _ _ _ _ _ _
17.	Yes No	I _ _ _ _ _ _
18.	Yes No	I _ _ _ _ _ _
19.	Yes No	I _ _ _ _ _ _
20.	Yes No	I _ _ _ _ _ _
21.	Yes No	I _ _ _ _ _ _
22.	Yes No	I _ _ _ _ _ _
23.	Yes No	I _ _ _ _ _ _
24.	Yes No	I _ _ _ _ _ _
25.	Yes No	I _ _ _ _ _ _
26.	Yes No	I _ _ _ _ _ _
27.	Yes No	I _ _ _ _ _ _
28.	Yes No	I _ _ _ _ _ _
29.	Yes No	I _ _ _ _ _ _

REASONS FOR ANSWERING "YES"

1. Has a nice appearance
2. Is friendly
3. Is fair
4. Is quiet
5. Is talkative
6. Is always thinking of new things to do
7. Has a good temper
8. Can take a joke
9. Is helpful in group planning
10. Is a good sport
11. Keeps his head
12. Argues well
13. Is good at games
14. Is polite
15. Is fun to be with
16. Is ready to do whatever the others want
17. Works hard in group activities
18. Is smart
19. Is dependable
20. Is a good discussion leader
21. _____
22. _____
23. _____
24. _____
25. _____

REASONS FOR ANSWERING "NO"

26. Has a poor appearance
27. Likes to loaf
28. Thinks he is too smart
29. Bashful
30. Is unfriendly
31. Is stupid
32. Is a sissy
33. Is always complaining
34. Has a bad temper
35. Can't take a joke
36. Is a poor sport
37. Is a poor discussion leader
38. Is teacher's pet
39. Scared of everything
40. Always wants his own way
41. Asks too many questions
42. Is a "show-off"
43. "Picks on" people
44. Is fresh
45. Is a "sneak"
46. _____
47. _____
48. _____
49. _____
50. _____

THE DETERMINATION OF SOCIOMETRIC STATUS

ERLING ENG AND ROBERT L. FRENCH
Northwestern University

Using sociometric choices we may not only derive a sociogram for a group, but also determine the relative status or ranking of each individual in the group with reference to the criterion of choice. The rankings of individuals have usually been determined in one of two ways: (1) sum of choices received when choices are restricted to five or some smaller number. (See, for example, Vreeland, 4); (2) sum of choices received when unlimited choices are allowed. (See, for example, Jennings, 3).

Sociometric studies have not thus far utilized the rational and well-tested methods for scaling preferences which are in common use by psychologists. The present study aimed at a comparison of status scores obtained by conventional sociometric procedures with the scores obtained by use of the method of paired comparisons and the method of rank order. Because the two latter methods require a judgment for every individual, they make possible accurate determination of positions over the entire range of sociometric status. Using the method of paired comparisons, each judge must make a choice in the case of each of all possible pairs of individuals. Hence this yields an even more rigorous determination of status position than does the method of rank order. Because of the rigor of the method of paired comparisons it has been suggested (1) that it serve as a criterion of validity for other psychological scaling methods, and it will be so considered here.

PROCEDURE

Subjects were 32 out of a total of 34 resident women in a college sorority. Choices were expressed in three sessions held at weekly intervals. The criterion was desirability as a roommate.

In the first session a sociometric test with unlimited choices was used, in the second session the method of paired comparisons, and in the third session the method of rank order.

Sociometric test with unlimited choices. This test consisted of a printed list of resident members arranged in alphabetical order. The following instructions headed the list of names:

> Imagine that you have just returned to school in the Fall quarter. Returning to your sorority, you find that you can choose anyone you wish as a roommate. Which girl, among your entire sorority membership, would you like to room with most? Indicate

your choices by *circling* their names in the list below. Then indicate the order in which you would choose them by numbering them 1, 2 and so on. Don't let the fact that a girl may have been your roommate before necessarily prevent your choosing her again. Indicate as many or as few choices as you wish.

Two scores were obtained from this test for each individual. One consisted of the sum of choices received, regardless of their rank. The other consisted of the sum of rank one and rank two choices received. The latter was taken to represent the score that the individual would have obtained had each chooser been limited to two choices.

Method of paired comparisons. A printed form was used in which the names of the 34 resident members were paired in the $n(n-1)/2$, or 561, possible different combinations. To eliminate any effects of a space error, each name was presented as often to the right as to the left in the pairs in which it appeared. The following instructions were used:

> On the following pages are the names of girls now living in the house. They are listed by pairs in various combinations. In the case of each pair, *underline the name of the girl you would refer to room with if you had to choose between the two.* For example, if you had to choose between Smith and Jones, you would indicate your preference for Jones as follows:
>
> Smith — Jones
>
> Don't let the fact that a girl may have been your roommate before necessarily affect your choices.
>
> Where your own name is listed as one of a pair, simply cross out that pair.

The score obtained for each individual from this questionnaire consisted of the sum of times she was chosen by the other members of the group.

Method of rank order. A printed form headed by the following instructions was used:

> Imagine that you have just returned to school in the Fall quarter. Returning to your sorority, you find that you can choose as a roommate anyone you wish among girls now living in the house. Their names are listed below. Which girl would you like to room with most? Indicate the order in which you would consider them by writing their names in the blanks at the right. Start at the top with the most preferred, and list the names in the order of your preference. Don't leave any space blank. And don't let the fact that a girl may have been your roommate before necessarily affect your order of preference.

From these rankings three scores were obtained. First, a mean rank

score was computed for each individual. Secondly, using a transformation suggested by Hull (2) on the assumption of a normal distribution, a "mean converted ranks" score was determined for each individual. Thirdly, individual scores consisting of total choices received in ranks one to five inclusive by each individual were computed. These last scores were taken to represent the scores that would have been obtained if each chooser had been limited to five choices in the original test.

Results

Six different scores were therefore available for each individual: (1) sum of choices received when choices were unlimited, (2) sum of choices received when choices were limited to two, (3) sum of choices received in paired comparisons, (4) a mean converted ranks score (5) a mean rank score, (6) sum of choices received when choices were limited to five.

The mean ranks correlated .99 with the mean converted ranks; therefore the latter will be omitted from further consideration. Table 1 shows the intercorrelations of the remaining 5 sets of scores.

TABLE 1.

Intercorrelations of Sociometric Status Scores Determined by Five Different Procedures

	Mean Ranks	Unlimited Choices	Limit of 5 Choices	Limit of 2 Choices
Paired comparisons	.97	.90	.73	.54
Mean ranks		.89	.74	.55
Unlimited choices			.78	.65
Limit of 5 choices				.75

The near perfect correlation obtained between mean ranks and paired comparisons scores is especially striking. A correlation of .97 would be remarkable as the reliability coefficient for a single test. In the present case, however, it is the correlation between two different tests given one week apart. Since the ranking method gives virtually the same results as the method of paired comparisons, and involves considerably less labor, it may be considered preferable.

Of the three conventional sociometric choice scores, that based on unlimited choices shows the highest correlation with the paired comparison scores. It is clearly superior in this respect to the techniques involving limited choices, and almost as good as the mean rank method.

If paired comparisons is accepted as the criterion, then it would appear that the method of mean ranks is suitable for work requiring the most precise determination, and that for general purposes the method of unlimited choices gives optimal results. Further research would be necessary, however, to determine that this holds for all kinds of groups.

Bibliography

1. Guilford, J. P. Psychometric methods. New York: McGraw Hills, 1936.
2. Hull, C. L. Aptitude testing. Yonkers: World Book Co., 1928.
3. Jennings, H. H. Leadership and sociometric choice. Sociometry, 1947, 10, 32-49.
4. Vreeland, F. M. Social relations in the college fraternity. Sociometry, 1942, 5, 151-162.

THE CONSTANT FRAME OF REFERENCE PROBLEM IN SOCIOMETRY

DAISY STARKEY EDWARDS
University of London, Institute of Education

From the outset of sociometric work, investigators have felt the need of a reference frame which ensures that conclusions may take their place in an integrated scheme of scientific measurement. Moreno[1] had such a standardization in mind when he proposed the introduction of "sociometric indices", derived from ratios. Later, however, Moreno and Jennings[2] suggested that an experimental sociometric situation may be related to a probability measure. This was followed by Bronfenbrenner[3] who elaborated on the general technique foreshadowed by Moreno and Jennings.

Each of the latter approaches seeks to compare an experimental sociometric situation with the type of situation which might have arisen by blind chance. In other words, if the usual technique of asking each member of a group to write down three preferred names is adopted, the alternative is obtained by supposing the participants are entirely uncooperative and write down any three names which occur to them on the spur of the moment. The significance of the sociometric situation is determined by the differences between the experimental and chance results. The Moreno and Bronfenbrenner approaches differ in the manner in which the chance results are assessed. Moreno relies on an "experimental" chance situation artificially created by thoroughly shuffling cards with the names of the group written on them by mechanical means, and taking the average of several sets of results thus obtained. Bronfenbrenner, on the other hand, derives his results by mathematical methods entirely.

Moreno and later investigators are all aware of the fact that "the most acceptable form of statistical treatment would be one which dealt with sociometric situations as a whole, and not with any single series of facts more or less arbitrarily separated from the total picture",[4] but admit that

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[1] Moreno, J. L., *Who shall survive,* Washington, D. C., Nervous and Mental Diseases Publishing Co., 1934.

[2] Moreno, J. L., and Jennings, Helen, *Sociometric Measurement of Social Configurations,* SOCIOMETRY MONOGRAPHS No. 3, Beacon House, New York City.

[3] Bronfenbrenner, Urie, *A Constant Frame of Reference for Sociometric Research,* SOCIOMETRY MONOGRAPHS No. 6, Beacon House, New York City, 1945.

[4] "Foundations of Sociometric Measurement", Joan H. Criswell, SOCIOMETRY, Vol. 9, No. 1.

in practice one measurement at a time must be considered, and suggest that a reasonably complete picture is given by:

1. The distribution of the frequencies of the number of choices received by each person, and particularly of those pertaining to large numbers of choices, the recipients of which are denoted by "stars".
2. The number of reciprocated and unreciprocated choices in the group.
3. The number of "isolates".
4. In cases where the group consists of two distinct sub-groups, or more, the number of inter-group choices, or a study of "cleavage".

The problems arising in (1) may be handled mathematically, but the others are not so easy. It is for this reason that one is impressed by the ingenuity of the Moreno and Jennings monograph, as the authors used the experimental results in two ways, firstly, for the situation capable of mathematical treatment; secondly, they took the mechanically obtained experimental frequencies and compared with the theoretical ones. The statistical χ^2 test confirmed that the two sets of results were in agreement, establishing the machine results were reliable as far as could be ascertained, and it was assumed, secondly, therefore, that the average results of a large number of sortings could be used in the case where the mathematical solution had not been obtained.

It is interesting to find that in the same monograph use is made of "expectation values" in the case of reciprocated choices. The statistician is in the habit of associating the term with a probability distribution, but the authors have evidently taken it here to mean "average value", which for the case under consideration is equivalent, but does not require specific knowledge of the distribution. For instance, in the case of the group of 26 used as an illustration, each choosing three names, the probability of a specific mutual choice is $p^2 = (3/25)^2$, and since there are ${}^{26}C_2 = 26 \times 25/2$ possible pairs, and because in this case p^2 must be the ratio of the number of cases in which the specific mutual choice occurs to the total number of possible arrangements, evidently ${}^{26}C_2 p^2$ is the average number of mutual choices occurring in the complete set of arrangements. This result owes its simplicity to the fact that one is not concerned with *how* the mutual choices occur in relation to one another, only in the total number that occurs throughout. It is a very different matter to obtain the frequencies of arrangements containing zero, one, two, etc., mutual choices, because to obtain this data one is forced to consider many different contingencies, for instance, two mutual choices may arise involving three people only, or four, and so on in a more complicated manner for larger numbers of mutual choices.

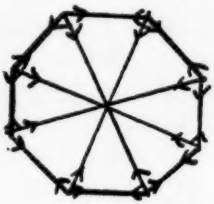
It would appear that the Bronfenbrenner monograph is open to criticism, on the grounds that he relates the expectation value and obtains probabilities from a binomial distribution of the form $(p^2 + 1-p^2)^{N(N-1)/2}$ for a group of size N. Examining the assumptions which must be made when using a distribution of this type, those relevant to this discussion are

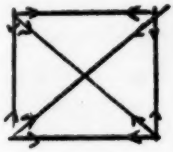
1. Every "success" in the probability sense, here a mutual choice, must have a probability p^2, which is applicable for each independently of the others. In other words, the type of problem in which it would normally be used is, for instance, the case of successive spins of a coin in which the numbers of "heads" are to be counted, and every spin can be counted as a fresh start independent of the others. Moreover

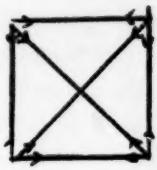
2. The total number of possible "successes" must be the exponent of the binomial expression, in this case $N(N-1)/2$. Neither of these conditions, are, in fact satisfied. Once a certain mutual choice has been made, both the partners are limited by the fact that they then have to choose one less name from a list of one less, or 2 out of 24 in Moreno's case, and are not, therefore, independent of the first "trial". Furthermore, it is not possible for as many as $N(N-1)/2$ mutual choices to be made, because only Nd choices are made altogether in the general case in which *d* names are written down, and, therefore, not more than $Nd/2$ mutual choices are possible. Reference has already been made by Criswell,[4] in general terms, to the breakdown of this type of method, because of the complexity of sociometric situations. It is clear that the use of the Binomial distribution for assessing significance points in the case of mutual choice frequencies is not correct, and the actual distribution is far more complicated. It is not even possible to choose $Nd/2$ or $(Nd-1)/2$ pairs at random out of the possible $N(N-1)/2$ when the maximum number of mutual choices is achieved, in fact only those in which everybody's name occurs *d* times are admissible, as the choices of each person must all be reciprocated.

At the time of writing an acceptable solution in reasonably simple terms is not available, and, while it is not proposed to deny that information on this point would be useful, *it should perhaps be put on record that the number of mutual choices alone can give a very false impression of the degree of integration of a group.* This is probably the reason why Moreno insisted on a structional analysis. For example, consider the case of eight people each making three choices. The maximum possible number of mutual choices is 12, and it could occur in several ways, of which two extreme cases are illustrated.

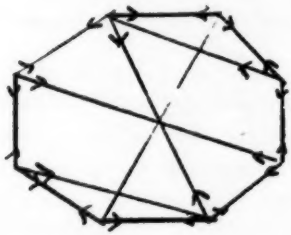
It is possible that in the extreme case of two cliques shown in (2) some

1. 

2. 



explanation such as race cleavage would be found, and put down in conjunction with the measurement of 12 in the mutual choices category, but, notwithstanding, it is evident that 12 mutual choices alone does not give adequate information. Moreover, on the basis of a significance test it would be considered to be superior to an arrangement such as

3. 

where, although there only 11 reciprocated choices and two unreciprocated choices, there seems little doubt that the group is better integrated than (2). Perhaps it is worth while for potential solvers of the distribution problem to ask themselves the value of their results before embarking on laborious calculations to this end.

The Bronfenbrenner monograph also gives a good deal of attention to the problems of the probabilities of interclass choice and of isolation. We would again express doubts on the validity of the use of the Binomial distribution[5] in connection with the interclass problem. In the first place the formula quoted[6] for the probability of a person in group *a* choosing one from group *b* by chance alone appears to assume that the criterion of "choosing" is taken to be the situation in which the name of a certain person from group *b* appears first on the list of a member of group *a*. It is for this reason that the formula eventually assumes the simple form b/(N–1), which follows directly from these assumptions. To be consistent with the

[5] *Loc. cit.* p. 34.

[6] *Loc. cit.* p. 24.

rest of the publication, in which the *order* of choice has been disregarded, we suggest an amended formula in the form

$$p = \frac{N-1C_d - a-1C_d}{N-1C_d}$$

which is the probability that a certain person in the first group includes somewhere on his list at least one of the second. The further use of the Binomial distribution is vitiated by the fact that subsequent choices of the same person have a different probability from the first. Here, however, we are in a position to indicate how the probabilities of a chance choice of r names, $0 \leqslant r \leqslant ad$, may be ascertained. For simplicity let the first group of a persons be girls, and the second boys.

Let p_0 = probability that any girl chooses no boys = $a-1C_d \,/\, N-1C_d$

Let p_1 = probability that any girl chooses 1 boy = $\dfrac{bC_1 \; a-1C_{d-1}}{N-1C_d}$

Let p_2 = probability that any girl chooses 2 boys = $\dfrac{bC_2 \; a-1C_{d-2}}{N-1C_d}$

and so on.

The total probability of these mutually exclusive events must be one, which may readily be verified, as a check. The probability of all the girls choosing between them no boys, one boy etc., may then be found by making use of the multinomial expansion

$$(p_0 + p_1x + p_2x^2 + \ldots\ldots\ldots p_dx^d)^a$$

The coefficient of x^r in this expansion is the probability of the number of choices of boys from the girls' group being exactly equal to r, and the probability of r or less choices is the sum of the relevant coefficients.

In connection with the Bronfenbrenner formula for the probability of i or less isolates[7] stated as

$$1 - \frac{(N-i-2)\,(N-i-3)\,\ldots\,(N-i-d-1)}{(N-1)\,(N-2)\,\ldots\,(N-d)}$$

[7] *Loc. cit.* p. 25.

we conclude that it is the probability of a given person's including at least one of $i + 1$ specified names, for the subtracted portion is the probability that a person does not include any one of $i + 1$ specified names. It is not clear how the author arrives at the result as a general formula covering the whole sociometric pattern. The following is an outline of a method of arriving at the required probability. In the first place, if k is the maximum possible number of isolates, then $k = N-1-d$. The people who are not isolates name d people not including these, and therefore have no choice, while the isolates choose d from a possible list of $d + 1$. Every different set of k isolates corresponds to a distinct sociometric situation, and thus the probability of k isolates is

$$P_k = {}_{N}C_{N-d-1} \frac{(d+1)^{N-d-1}}{({}_{N-1}C_d)^N}$$

Considering the case of $k-1$ isolates, again, these not named as isolates choose d from a possible list of $d + 1$, while the isolates can choose d from a possible list of $d + 2$. However, it is obvious that these possibilities include cases where there are k isolates, as any particular set of $k-1$ isolates can have one of $d + 2$ more isolates accidentally added in a sociometric diagram containing it, resulting in

$$P_{k-1} = {}_{N}C_{N-d-2} \left[\frac{(d+1)^{d+2}}{({}_{N-1}C_d)^N} \left[\frac{(d+1)(d+2)}{2} \right]^{N-d-2} - \frac{(d+2)P_k}{{}_{N}C_k} \right].$$

P_{k-2} follows by successive elimination of additional irrelevant cases in which there are either $k-1$ or k isolates, and so on. The form of these results, ultimately to be added to get probability of i or less isolates, would indicate a complicated algebraical expression for the required probability, involving in the denominator a power of ${}_{N-1}C_d$, and we have been unable to derive Bronfenbrenner's simple result from these premises.

The complexity of the formulae raises the question of whether there is any possibility of modifying the existing technique of sociometric experimentation to meet the requirements of a simple mathematical treatment. It is evident that what is needed is something in which the responses of each individual are independent in the probability sense. An obvious possibility is to ask everyone for a response concerning each member of the group, perhaps, for instance, "like", "neutral", "dislike", which appears to have some support from Moreno insofar as he has at times obtained detailed information from each member of the group about the others. Members

of a discussion group in London University who had already applied sociometric technique by the usual method of limited choices, expressed the opinion that this would perhaps not achieve the same object as the normal method. It would force a decision concerning each person from each person, which might not necessarily be forthcoming. However, a summary of the probability results which would follow are included for interest:—

Stardom. The probability that a person writes down "like" about any other person in the group by chance alone is 1/3, and that he makes any other response is 2/3. Hence the probability that any member of the group scores r "likes" by chance alone is $p_r = {}^{N-1}C_r\,(1/3)^r(2/3)^{N-1-r}$, and the expansion of the binomial $(1/3 + 2/3)^{N-1}$ gives the probabilities of a certain person scoring any number of "likes" from 0 to N–1.

Mutual Choices. The probability of a mutual choice occurring by chance alone is $(1/3)^2$, and any one mutual choice is made independently of any other. Hence the Binomial expansion $(1/9 + 8/9)^{N(N-1)/2}$ gives the probabilities of the occurrence of any number of mutual choices up to the maximum which is obviously $N(N-1)/2$.

Isolates. Define an isolate as one who receives only "neutral" or "dislike" choices. The probability that any one person receives all unfavourable choices is $(2/3)^{N-1}$, and the probability that he receives at least one favourable choice is $(1-(2/3)^{N-1})$. Hence the probability of exactly i isolates is

$$P_i = N_{C_i(2/3)^{i\,(N-1)}(1-(2/3)^{N-1})^{(N-i)}}$$

which is the corresponding term in the binomial distribution

$$[(2/3)^{N-1} + 1-(2/3)^{N-1}]^N.$$

Cleavage. With the previous notation, if the probability of the choice by chance of a certain number of boys names is required, as in the result already found, assuming it immaterial whether the same or different boys are chosen, the problem is the same as that of one girl making a choice from *ab* boys, and the probability of the choice of r boys (i.e. r "likes") is the term containing $(1/3)^r$ in the expansion of $(1/3 + 2/3)^{ab}$. Bronfenbrenner's very useful remarks on the approximation to the tail area of a Type III curve which applies to the sum of the end terms of the Binomial distribution would, of course, have scope for application in computing the corresponding probabilities.

Thus we have attempted to survey the present work on applications of

the theory of chance to the problem of a sociometric frame of reference, and suggested certain modifications to existing published work. The latter have greater claim to accuracy than to utility, and, therefore, we have concluded by suggesting a different method of collecting sociometric data which would lead to less complicated mathematical treatment. It is hoped that the suggested modifications will invoke opinions from field workers regarding the possibility of their practical application.

Announcements

ANNUAL MEETING, AMERICAN SOCIOMETRIC ASSOCIATION

The meeting will take place at the Hotel Commodore and Sociometric Institute, New York City, April 22, 23 and 24, 1949. Program:

FRIDAY, APRIL 22nd, 1949

8:45 P. M.—Demonstration of Psychodrama, SOCIOMETRIC INSTITUTE, 101 Park Avenue, New York. (One block from the Commodore Hotel)
Directed by J. L. Moreno

Special arrangements are to be made for the attendance of this session. Contact the Institute in advance for further information. Members of the American Sociometric Association are cordially invited to attend this psychodrama session as guests of the Sociometric Institute.

SATURDAY, APRIL 23rd, 1949

Hotel Commodore, New York
Club Suite, Third Floor

9:00 - 9:30 A. M.—*Registration for American Sociometric Association Meeting*

9:00 - 11:00 A. M.—*Registration for Luncheon Meeting,* tickets to be picked up at Registration desk in advance
Club Suite, Third Floor

9:30 - 10:45 A. M.—*Sociometry and Anthropology*

Moderator: Charles P. Loomis, Michigan State College
"Sociometric Grouping of Independent Peasant Farmers Compared to Those of Plantation Workers in Costa Rica"
Bernard W. Aginsky, College of the City of New York
"Anthropology and Psychodrama"
Margaret Mead, American Museum of Natural History
"Anthropology and Sociometry"
Club Suite, Third Floor

11:00 A. M.—12:15 P. M.—*Current Research in Sociometry*

Moderator: Julius B. Maller, Study of Health Needs in New York City

"Integration of Sociometric Research"
John Q. Stewart, Princeton University

"Current Developments in Social Physics"
Frank A. Stewart, Time Magazine

"Sociometry and the Open Community"
Joan H. Criswell, Department of the Navy

"Development of Sociometric Statistics"

SATURDAY, APRIL 23rd, 1949
Club Suite, Third Floor

12:30 - 2:30 P. M.—*Luncheon Meeting, Sociometry and Education*

Moderator: J. L. Moreno, Sociometric Institute
Leona M. Kerstetter, New York University

"Sociogram of Social Atoms in the Educational Process"
Ronald Levy, Roosevelt College

"Sociometric Approach to Teacher Training"
Ralph B. Spence, New York State Department of Education

"Sociometry and Sociodrama in Adult Education"

Discussion: Frederic M. Thrasher, New York University
Louis E. Rath, New York University

Guests: Jacob Greenberg, New York City Schools
Fritz Leuchs, New York City Schools
Mary Riley, New York City Schools
Nathaniel Kaplan, Board of Education of the City of New York
Club Suite, Third Floor

2:45 - 3:45 P. M.—*Sociometry and Community Relations*

Moderator: Helen H. Jennings, Sociometric Institute

"Sociometry and Community Relations"
Martin Chworowsky, Teachers College, Columbia University

"Sociometric Experience: Its Subjective Aspect"
Herbert K. Walther, Denver University

"Sociodrama in Teacher Education"
Club Suite, Third Floor

4:00 - 5 P. M.—*Sociometry, Group Psychotherapy and Sociatry*

Moderator: Zerka Toeman, Sociometric Institute
"The Role Process in Group Psychotherapy"
Robert Badinter
"Classification of Leadership"
Paul Cornyetz, Brooklyn College
"Psychodramatic Approach to Personality Diagnosis"
Joseph I. Meiers,
"Dynamic Sociometry Applied"
Wladimir Eliasberg,
"An Industrial Man Takes to Social Psychiatry"

Discussion: J. L. Moreno, Sociometric Institute

SATURDAY, APRIL 23rd, 1949
Club Suite, Third Floor

5:00 - 6:00 P. M.—*Business and Membership Meeting*
Club Suite, Third Floor

9:00 - 11:00 P. M.—*Sociodrama, A Demonstration* by J. L. Moreno (Instead of a Presidential Address)
Discussion from the floor.

SUNDAY, APRIL 24th, 1949
SOCIOMETRIC INSTITUTE, 101 Park Avenue, New York
(One block from the Commodore Hotel)

2:15 - 4:45 P. M.—*Practical Symposium of Sociometry*
Leona Kerstetter, New York University
"Introduction of the Psychodrama Theatre, Its Function in the Treatment of Marriage and Family Relations"
Helen J. Jennings, Sociometric Institute
"Demonstration and Explanation of Sociometric Charts; The Building of a Sociogram; Psychological Geography of a Community"

MORENO INSTITUTE

Part Scholarships Available

Special Rates for Veterans

The Institutes of Beacon and New York have organized facilities for the enrollment of one hundred students for the course during the coming year. All students are to receive instruction and training in sociatry, socio- and psychodrama, sociometry and group psychotherapy, covering among others, the fields of: Nursery School, Child Guidance, Public School Education, Juvenile Delinquency, Speech Disorders, Intercultural Relations, Leadership Training, Family and Marriage Problems, Music Therapy, Therapeutic Films, Rehabilitation of the Returned Soldiers and Their Families, Political and Labor Conflicts, Community and Religious Problems.

The objectives of the program are: (a) Training of directors of psychodrama, sociodrama and group psychotherapy in the conducting of sessions; (b) Training auxiliary egos (therapeutic and research actors), of group interviewers and group lecturers; (c) Training of social analysts in clinical and actual situations; (d) Seminars covering the fields of psychodrama, sociodrama, sociometry, group psychotherapy and therapeutic motion pictures; (e) Research and field projects in psychodrama and group psychotherapy, with study of methods and analyzing and classifying psychodrama, sociodrama and sociometric materials.

Teaching and training will be given jointly at the auditorium of the New York Institute and at the Therapeutic Theatre of the Moreno Clinic.

Students fall under two categories: Category A: The Beacon Group-Enrollment in this group is limited to 30 students. Classes and sessions begin on June 1st and last for 5 months, until October 31st. Students of this group receive their room, board and training at the Psychodramatic Institute at Beacon, New York. The fee for students of this group is $60.00 per week, $240.00 for a four weeks' stay. Directorial work is part of the training of this group. Application for enrollment in this group should be in our hands by May 15th, with registration fee of $5.00. Members of the Beacon group may attend New York sessions at a small additional expense.

B: The New York Group-Students live in New York (those who have private residence) or commute from out of town and attend the classes at the New York Institute at 101 Park Avenue. These courses may be arranged throughout the year. For this group sessions and classes are given 3 times a week in the late afternoon and evening, so that they are able to pursue a professional occupation during the day, or other academic studies. The full enrollment capacity of this group is 80 students. The weekly tuition fee is $20.00, the fee for a 12 weeks' course is $240.00; with additional training in directorial capacity the fee runs to $360.00. There are a number of half scholarships available. Students who qualify for and obtain such scholarships pay half the tuition for the 12 weeks' course, $120.00 and $180.00 respectively. New York students may attend week-end sessions at Beacon, N. Y., staying at the Beacon Institute for the week-end if room is available,

for an additional fee. Such a week-end training is meant especially for students interested in directorial techniques and work with mental patients. All students are required to pay a registration fee of $5.00 in advance.

J. L. Moreno, M. D., Director of the Psychodramatic Institute in Beacon and New York City, assisted by a staff of instructors, will conduct the seminars and sessions. Students will be permitted to use the library at the Psychodramatic Institute. Every student is expected to formulate and work out a research project relaed to his own field of application, under guidance. Upon completion of the course every student will obtain an official acknowledgment from the director as to the duration of the course and the accomplishments of the student.

Students interested in training courses may file their application at any time.

In the course of the training period several three-day, holiday week-end conferences take place. Arrangements can be made for the Conferences independently from the training course. Fee for room, board and attendance of all sessions: $35.00. For further information write to: Moreno Institute, Beacon, New York.

ENROLLMENT CARD FOR STUDENTS

PSYCHODRAMATIC INSTITUTE

I enroll for a ..... weeks training course at

Beacon, New York

from ..... till .....

..... and enclose herewith the registration fee of $5.00.

Name, in full (please print) .....

Address .....

Fill in, tear off and mail to Moreno Institute,

Beacon, New York

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, AS AMENDED BY THE ACTS OF MARCH 3, 1933, AND JULY 2, 1946

Of Sociometry, A Journal of Inter-Personal Relations published Quarterly at Beacon, New York, for October 1, 1948, State of New York, County of Dutchess, ss.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared J. L. Moreno, who, having been duly sworn according to law, deposes and says that he is the Editor of Sociometry, A Journal of Inter-Personal Relations, and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily, weekly, semiweekly or triweekly newspaper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the act of August 24, 1912, as amended by the acts of March 2, 1933, and July 2, 1946 (section 537, Postal Laws and Regulations), printed on the reverse of this form to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, Beacon House Inc., Beacon, New York; Editor, J. L. Moreno, Beacon, New York; Managing Editor, Helen H. Jennings, 5727 Kenwood Ave., Chicago, Ill.; Business Manager, Zerka Toeman, Beacon, New York.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) Beacon House Inc., 259 Wolcott Ave., Beacon, New York.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 percent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is 000. (This information is required from daily, weekly, semi-weekly, and triweekly newspapers only.)

Signed J. L. Moreno

Sworn to and subscribed before me this 4th day of October, 1948.

Warren C. Taylor,
Notary Public

(My commission expires March 30, 1949)